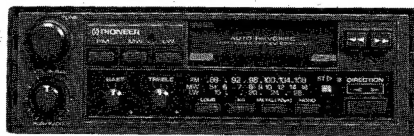


Service Manual

PIONEER

V16



The photo shows the model KPH-4830/EW

ORDER NO.
CRT-474-0

CASSETTE CAR STEREO WITH TUNER

KPH-4800

EW, ES

CASSETTE CAR STEREO WITH TUNER

KPH-4830

EW

CASSETTE CAR STEREO WITH TUNER

KPH-4800SDK

WG

• Cassette Mechanism Unit

See the Service Manual CX-152/A (CRT-467-0) when servicing the cassette mechanism unit.

SPECIFICATIONS

General

Power source 14.4V DC (10.8–15.6V allowable)
Grounding system Negative type
Max. current consumption 5A
Dimensions (chassis) 180(W) x 50(H) x 150(D)mm
(front face) 188(W) x 58(H) x 10(D)mm
Weight 1.7kg (KPH-4800/EW, ES, KPH-4830/EW)
1.8kg (KPH-4800SDK/WG)

Amplifier

Maximum power output 20W+20W
Continuous power output 13W + 13W (1% dist. at 1kHz)
Load impedance 4Ω (14–8Ω allowable)
Tone controls (bass) ±10dB (100Hz)
(treble) ±10dB (10kHz)
Loudness contour +12dB (100Hz), +7dB (10kHz)
(volume: –30dB)

Tape player

Tape Compact cassette tape (C-30–C-90)
Tape speed 4.76cm/sec. (+0.14cm/sec., –0.05cm/sec.)
Fast forward/rewind time Approx. 100 sec. for C-60
Wow & flutter 0.15% (WRMS)
Frequency response Metal: 50–17,000Hz (±3dB)
Normal: 50–14,000Hz (±3dB)
Stereo separation 45dB
Signal-to-noise ratio 52dB (IEC-A network)

NOTE:

Exploded View (Page 16)

CX-152/A				KPH-4800SDK/WG	
Mark	No.	Part No.	Description	Part No.	Description
★ ★	22.	CXM-114	Motor	CXM-115	Motor

FM tuner

Frequency range 87.5–108MHz
(KPH-4800/EW, ES, KPH-4830/EW)
87.5–107.5 (KPH-4800SDK/WG)
Usable sensitivity 12dBf (1.1μV/75Ω, mono)
50dB quieting sensitivity 17dBf (1.9μV/75Ω, mono)
Signal-to-noise ratio 70dB (IEC-A network)
Distortion 0.3% (at 65dBf, 1kHz, stereo)
Frequency response 50–12,000Hz (±3dB)
Stereo separation 40dB (at 65dBf, 1kHz)

MW (AM) tuner

Frequency range 530–1,600kHz
Usable sensitivity 18μV (25dB) (S/N: 20dB)
Selectivity 30dB (±9kHz)

LW tuner (KPH-4830/EW)

Frequency range 150–280kHz
Usable sensitivity 180μV (45dB) (S/N: 20dB)
Selectivity 30dB (±9kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

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Note: (KPH-4800SDK/WG)

When requested by a customer to confirm the receiving frequencies of the tuner, please determine whether FTZ standards are satisfied: If they are not, please adjust the unit to these standards, referring to the section of this service manual entitled ADJUSTMENT.

1. CONNECTIONS

Note:

- To avoid shorts in the electrical system, be sure to disconnect the battery \ominus cable before beginning installation.
- When replacing fuses, be sure to use only fuses of the same capacity.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Since a unique BPTL circuit is employed, never wire so the

speaker leads are directly grounded or the left and right speaker \ominus leads are common.

- Speakers connected to this unit must be high-power type possessing maximum output of at least 20W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.

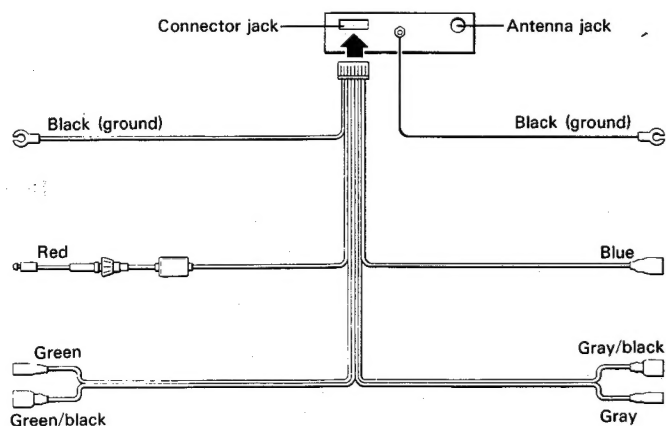


Fig. 1

Black (ground)	To vehicle (metal) body.
Red	To electric terminal controlled by ignition switch (12V DC) ON/OFF.
Green	To left speaker \oplus terminal.
Green/black	To left speaker \ominus terminal.
Blue	To auto-antenna power terminal (Max. 300mA 12V DC).
Gray/black	To right speaker \ominus terminal.
Gray	To right speaker \oplus terminal.

2. OPERATION

• Using the Radio

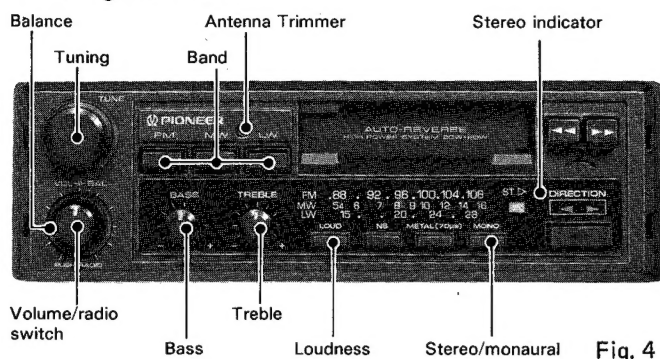


Fig. 4

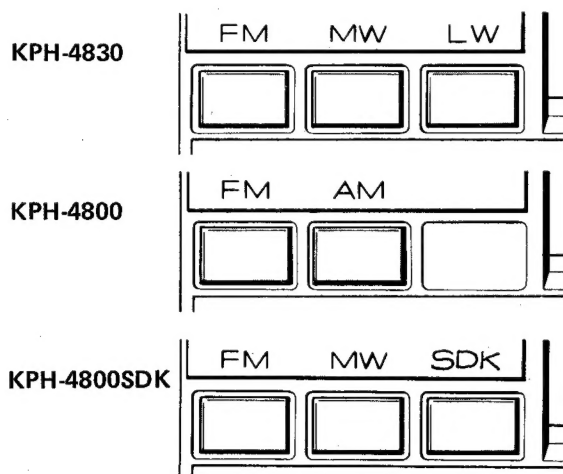


Fig. 5

• Using the Tape Deck

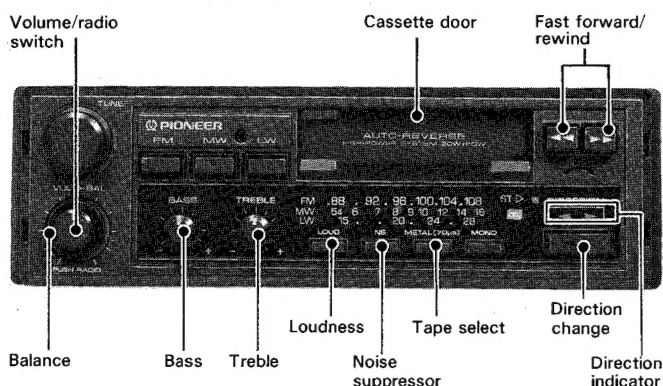


Fig. 6

• Before attempting operation.....

- Reduce the volume by turning the volume control knob to the left.
- 1. Insert a tape into the deck to turn the power on and automatically begin playback. Even if the radio is on, the unit will automatically switch to and begin tape playback.
- 2. Adjust the volume, bass, treble and balance. Press the loudness switch if required.
- 3. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, simultaneously press the fast forward and rewind buttons.

Note:

- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.

• Before attempting operation.....

- Reduce the volume by turning the volume control knob to the left.
- 1. Press the radio switch to turn on power.
- 2. Press the band switch to select band.
- 3. Turn the tuning knob to select a frequency.
- 4. Adjust the volume, bass, treble and balance. Press the loudness switch if required.

• Stereo/Monaural Switch

This switch is used to change from stereo to monaural for FM broadcasts, and is usually left in the stereo position. When a stereo broadcast is received, the stereo indicator will illuminate. With the "Automatic Reception Control" (ARC) function, stereo broadcasts can always be enjoyed in their optimal reception mode. If excessive noise is present, pressing this switch allows monaural reception of the broadcast.

• Loudness Switch

When playing back a tape or listening to the radio at low volume, the low and high tones are emphasized and more clearly heard by pressing this switch.

• Antenna Trimmer Adjustment

Tune in a frequency in the vicinity of 1,400kHz in the MW (AM) band and adjust the antenna trimmer with a Phillips head screwdriver until optimum reception is attained.

- If the ignition of the vehicle is turned OFF 2 to 3 seconds after the direction change button is pressed, the tape can not be ejected even if the ejection button is pressed. When this happens, turn the ignition key to the ON or ACC position to remove the tape.

• Fast Forward/Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

• Direction Change Button

This button is used to switch from one side of the tape to the other (from Side A to Side B or vice versa).

• Tape Select Switch

This switch is used to switch to the proper mode for the tape being used and should be depressed when using chrome or metal tapes.

• Noise Suppressor Switch

Press to reduce tape hiss.

3. PARTS LOCATION

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
★ ★: GENERALLY MOVES FASTER THAN ★.
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

The photoshows the model KPH-4800SDK/WG.

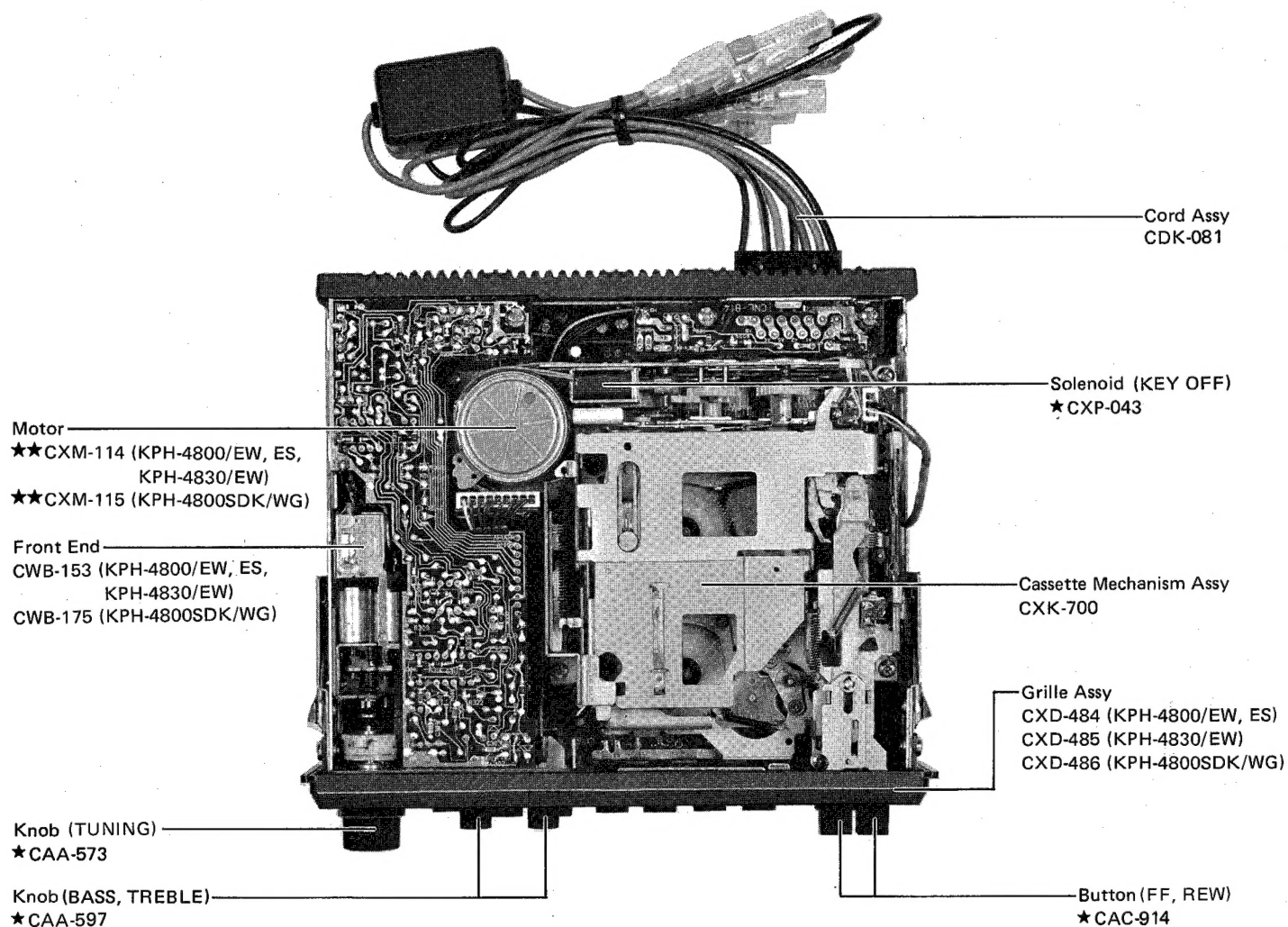


Fig. 7

4. DISASSEMBLY

• Removing the Case

1. Remove the five screws (A), and remove the case.

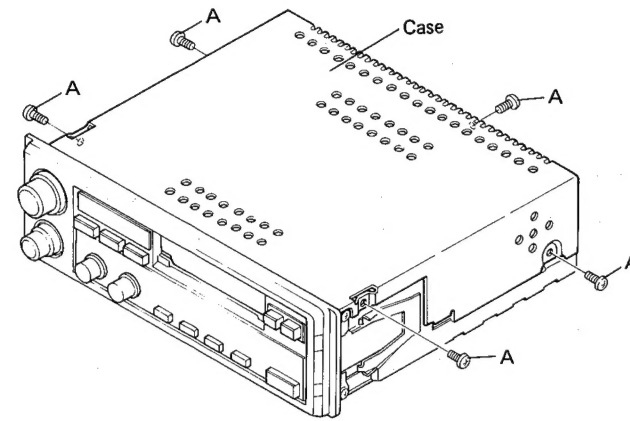


Fig. 8

• Removing the Grille Assy

1. Remove the four screws (B) and the knobs, then remove the grille Assy.

• Removing the SDK Unit (KPH-4800SDK/WG)

1. Remove the screw (C) and unsolder, then remove the SDK Unit.

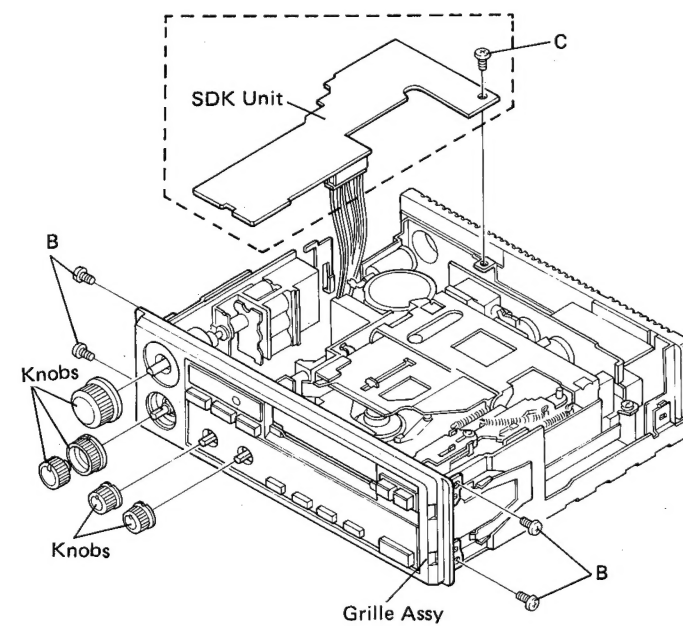


Fig. 9

• Removing the Cassette Mechanism Assy

1. Remove the four screws (D), and remove the cassette Mechanism Assy.

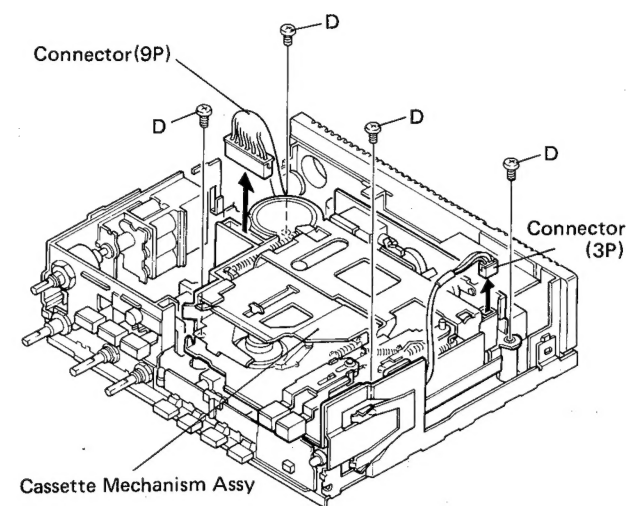


Fig. 10

• Removing the Chassis Unit

1. Remove the screw (E), then remove the chassis unit.

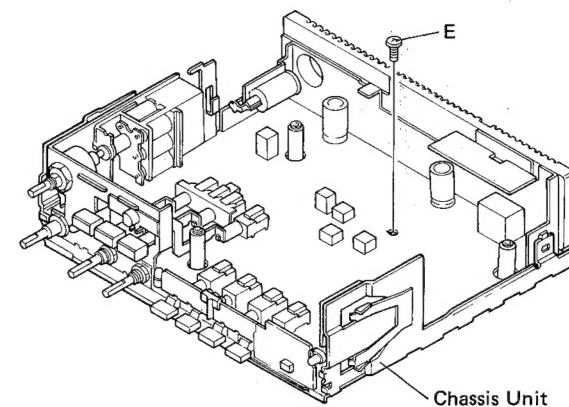


Fig. 11

5. CIRCUIT DESCRIPTION

5.1 POWER SUPPLY LINE

• KPH-4800/EW,ES, KPH-4830/EW

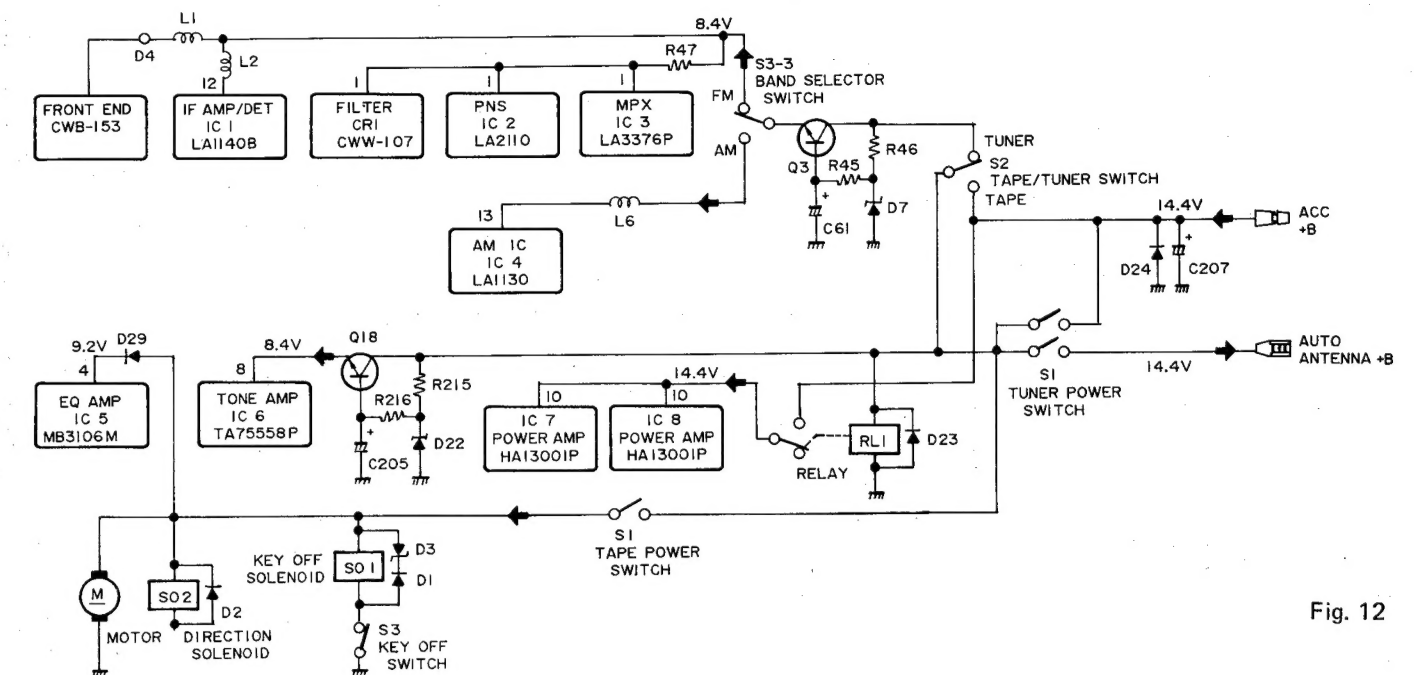


Fig. 12

• KPH-4800 SDK/WG

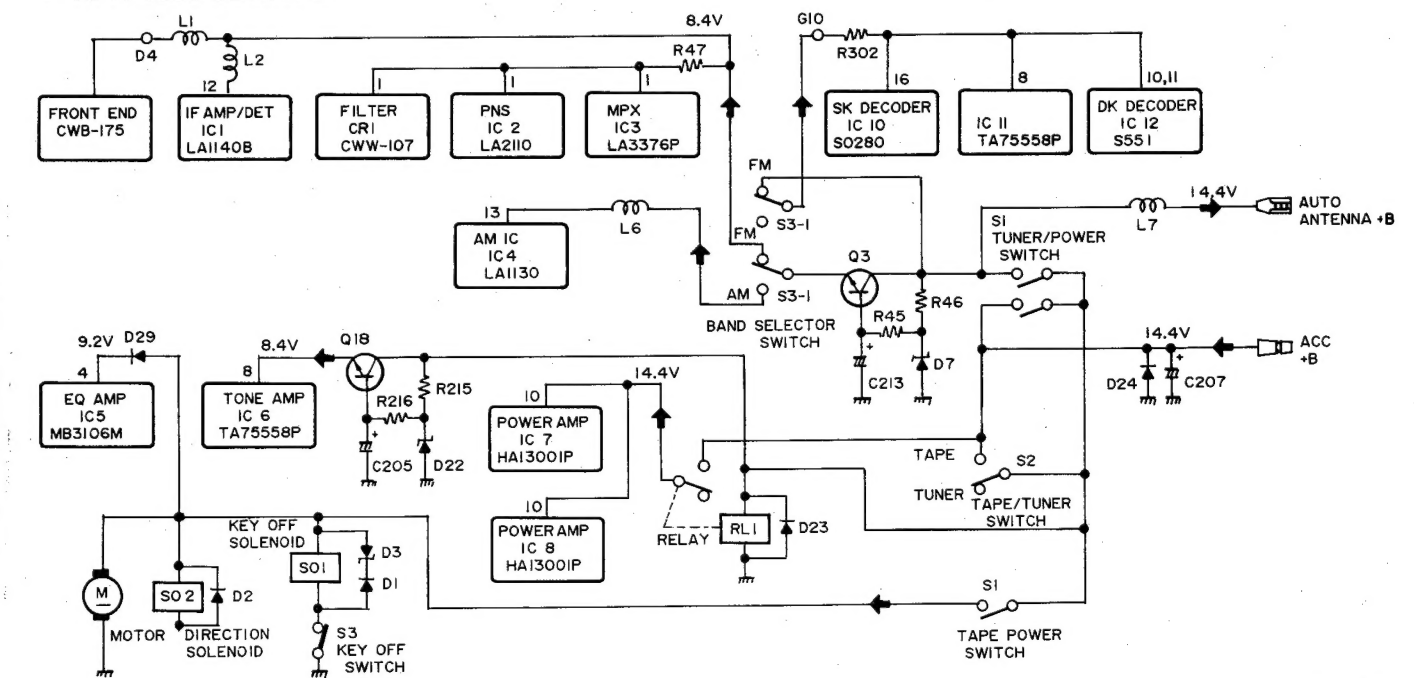


Fig. 13

5.2 BLOCK DIAGRAM

• KPH-4800/EW, ES

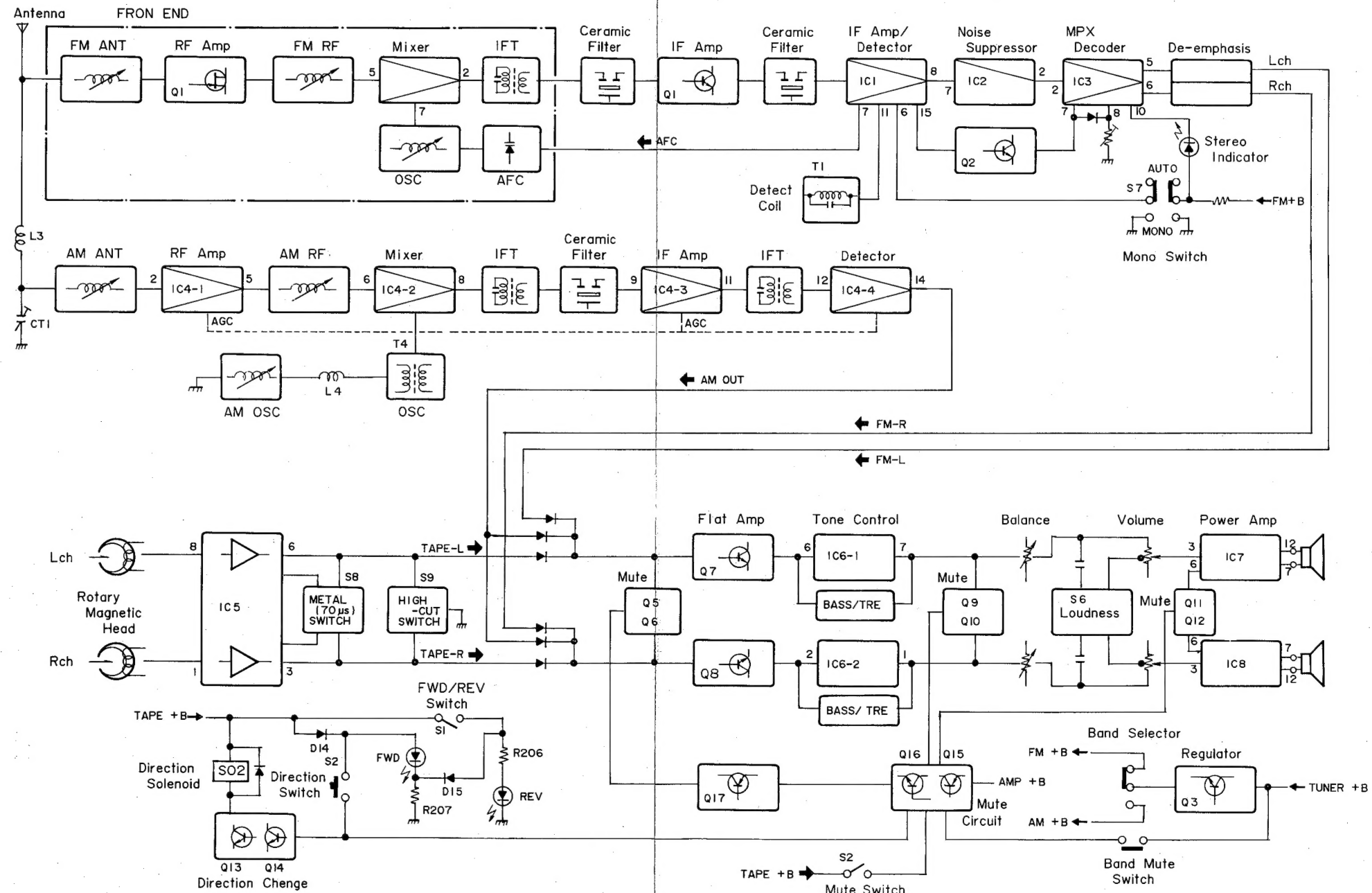


Fig. 14

• KPH-4830/EW

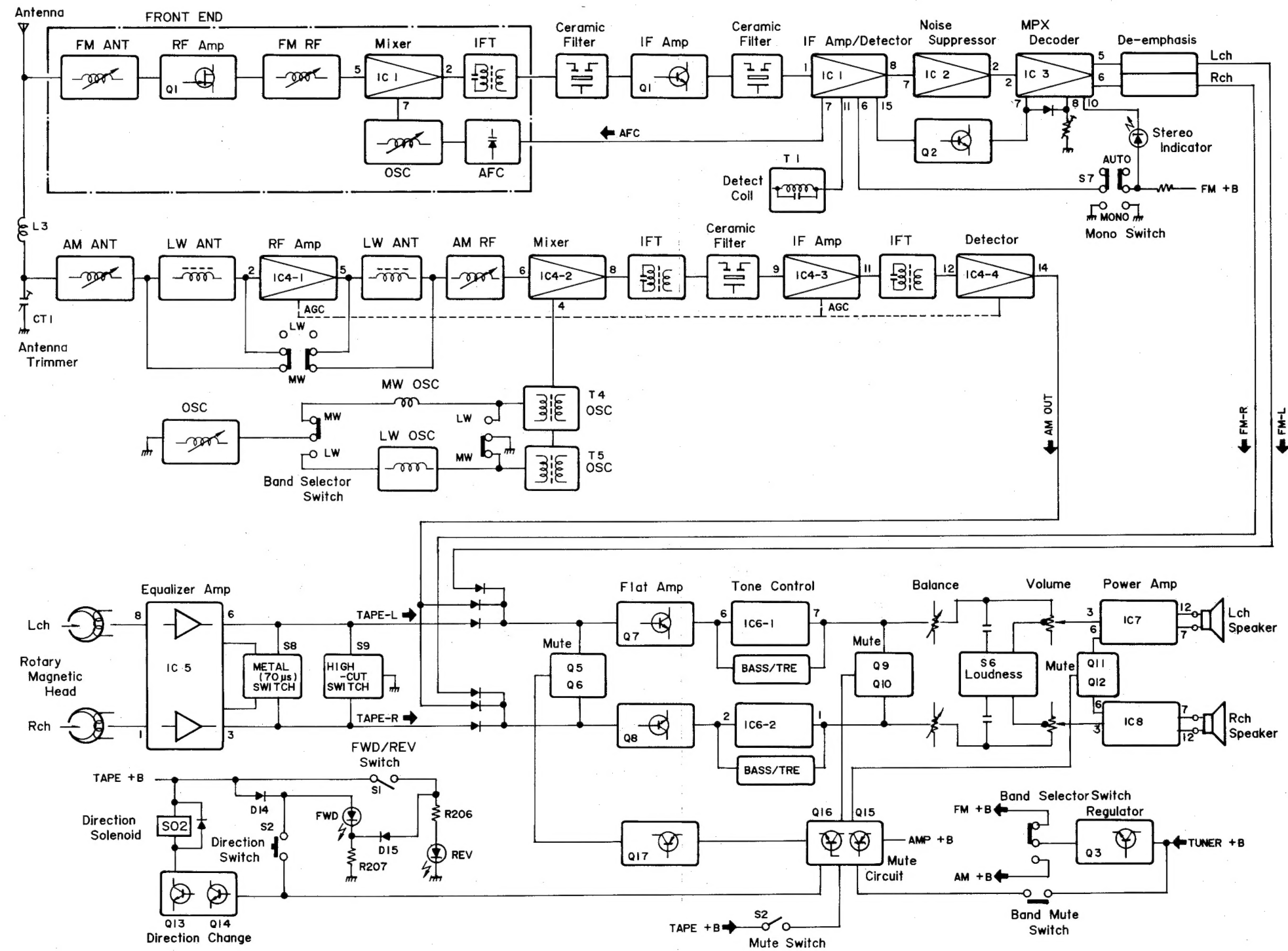


Fig. 15

• KPH-4800 SDK/WG

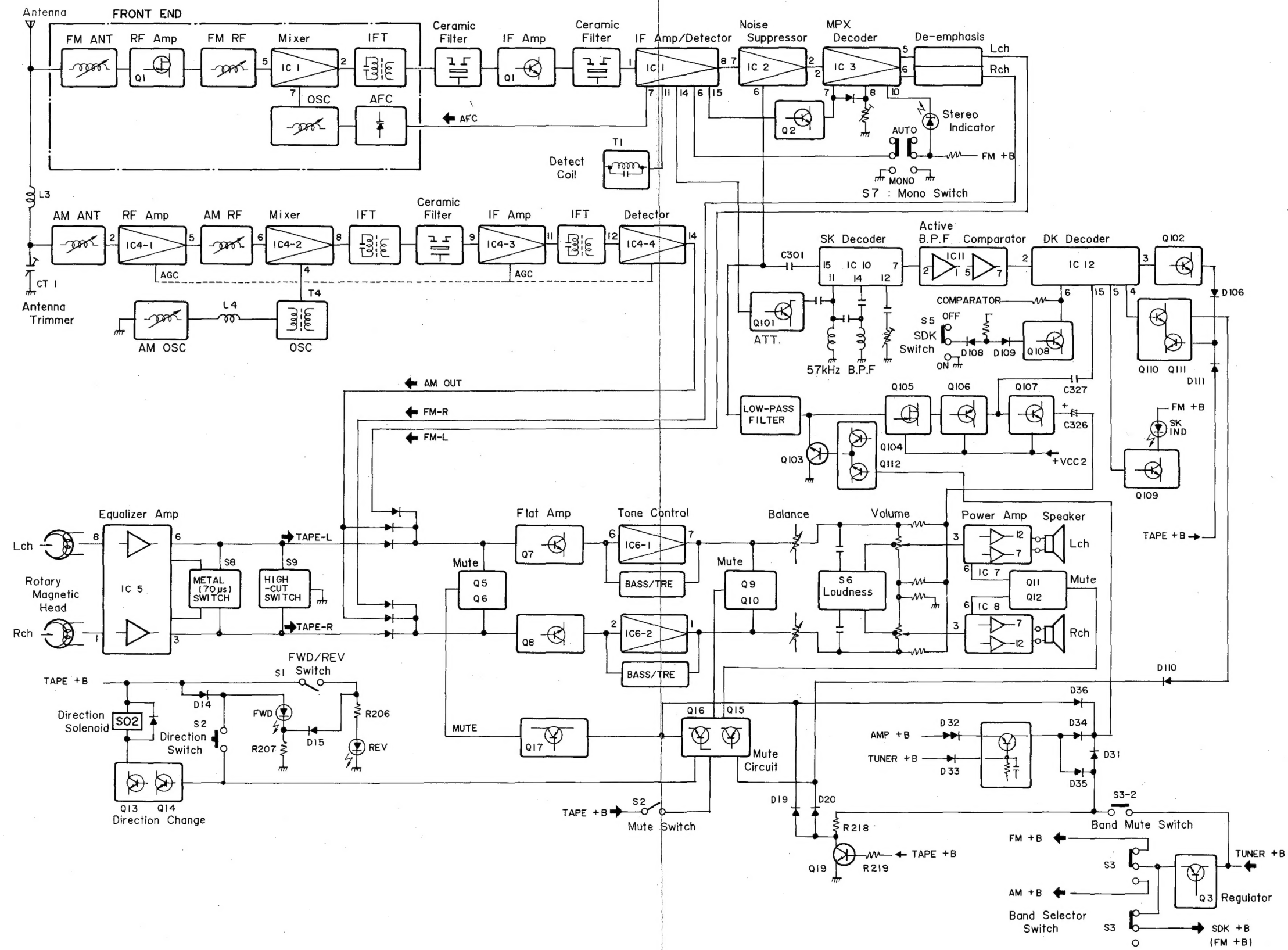


Fig. 16

5.3 FM TUNER SECTION

The intermediate frequency signal is converted to 10.7 MHz by the front end section, which contains an FET 1-stage RF amplifier*. After passing through a ceramic filter (CF1), the intermediate frequency signal passes through Q1 and CF2, and is subject to amplification, limiting amplification and detection by IC1. IC1, which contains a quadrature detector circuit, performs soft-muting, IF bandwidth muting, and outputting of signal strength. As the signal detected by IC1 passes through the PNS (pulse noise suppressor) of IC2, ignition noise is eliminated. The signal is then routed through the MPX decoder (IC3) and the de-emphasis circuits (R30, C34, R29 and C33) to the switching diodes (D3 and D4).

As the composite signal passes through IC3, DC voltage in proportion to the signal strength goes from IC1 pin 15, through the Q2 buffer to pin 7. Low frequency control in the high frequency range is carried out in proportion to the signal strength. Separation control is then carried out at pin 8, after the signal passes through the diode.

*Front ends CWB-153 and CWB-175 differ in receiving frequency range. The receiving frequency range is 87 MHz – 109 MHz for the former and 87.5 MHz – 107.5 MHz for the latter.

5.4 AM TUNER SECTION

The AM tuner section operates by permeability tuning at IC4. It features wide-band AGC and a wide dynamic range. The demodulated signal goes to switching diodes D5 and D6.

5.5 TAPE PLAYER SECTION

The tape player section of this unit is an auto-reverse tape player employing a rotating magnetic head. The signal from the head is routed to switching diodes D9 and D10 after passing through the equalizer at IC5.

• Direction Indicator Section (Fig. 17)

When the tape player is running in the reverse direction, D202 is illuminated because DC voltage is applied to D202 through the FWD/REV switch. At this time, D201 is "off" because reverse bias is being applied through D15. When the tape player is running in the forward direction, D202 is "off" because no DC voltage is being applied to that diode. The current which is flowing towards D202 is blocked by D15 because D201 is illuminated. D14 assures that D201 will go "off" by compensating the drop in voltage at D15.

• Direction Switching Circuit (Fig. 18)

When the direction Switch (S2) is pressed, the voltage applied to both ends of R204 is differentiated at C201 and R203. The rising edge of this differentiated voltage drives Q14 and Q13, which switches the solenoid "on," thereby changing the tape running direction.

In addition, a mute signal is emitted by S2 when the running direction is changed.

5.6 SIGNAL SWITCHING SECTION

The signal from the FM section passes through switching diodes D3 and D4; the signal from the AM section passes through switching diodes D5 and D6, and the signal from the tape player section passes through switching diodes D9 and D10. In models KPH-4800/EW, KPH-4800/ES and KPH-4830/EW the power source is switched between the FM, AM and tape player circuits. As voltage is applied to one of these circuits, it makes the corresponding diode conductive, and the signal from the operating circuit is routed through the buffer circuits at Q7 and Q8 to power amplifier IC7 and IC8. In model KPH-4800SDK/WG, the tuner circuit is active even when the unit is in the tape player mode. Therefore, when in the tape player mode, the voltage at the anode side of switching diodes D9 and D10 is set higher than the voltage (from the AM or FM section) at the anode side of switching diodes (D5, D6, D3 and D4). This applies reverse bias to the latter diodes, thus disconnecting the signal from the tuner section.

When in the tuner mode, voltage is not applied to IC5. The voltage at the anode side of switching diodes D9 and D10 is therefore 0V, and the signal from the tape player section is disconnected because voltage applied from the tuner applies reverse bias to these diodes. In the tuner, the signal from the AM or FM circuit (whichever is "on") is routed through Q7 and Q8 to the power amplifier.

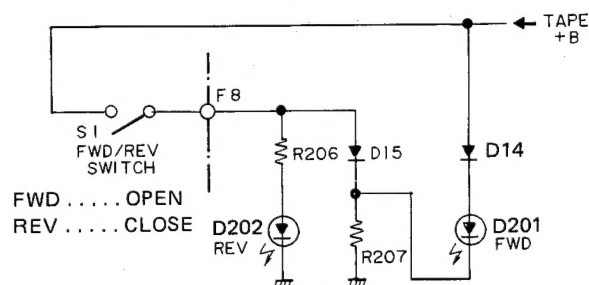


Fig. 17

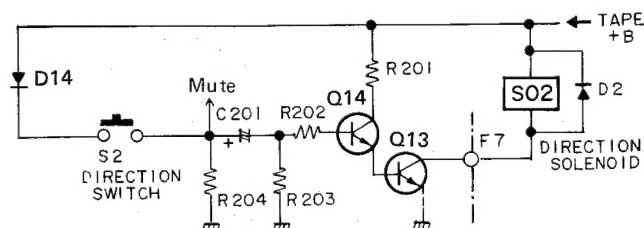


Fig. 18

5.7 MUTE CIRCUIT

The mute circuit consists of the mute signal generating circuit (Q15 and Q16) and the signal attenuator circuit (Q5, Q6 and Q9, Q10) (Model KPH-4800SDK/WG has, in addition, a mute signal generating circuit (Q20)).

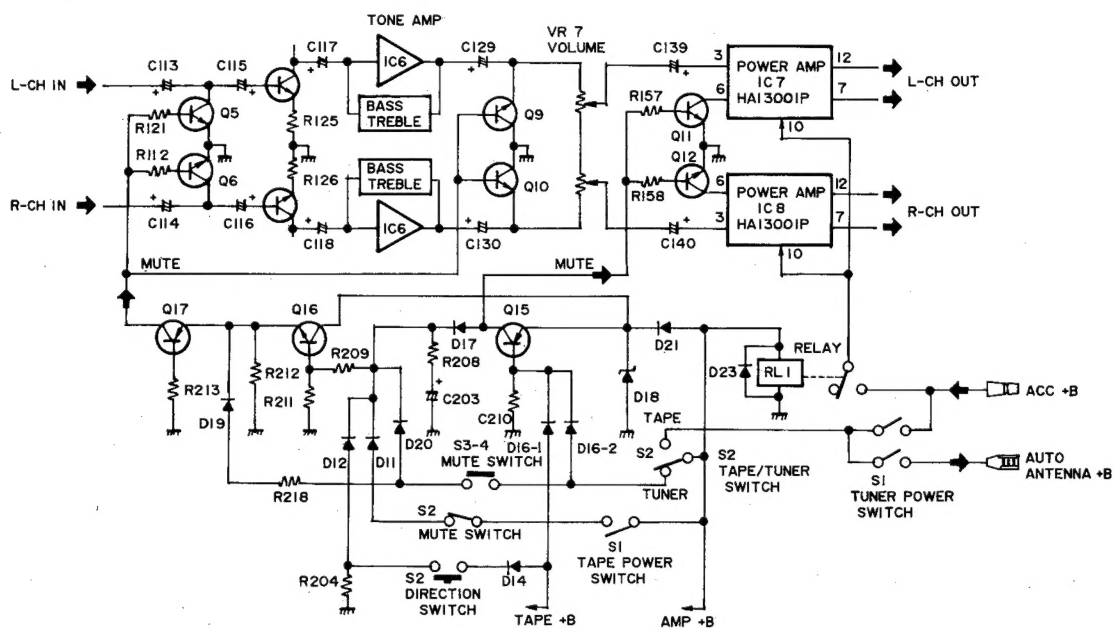


Fig. 19

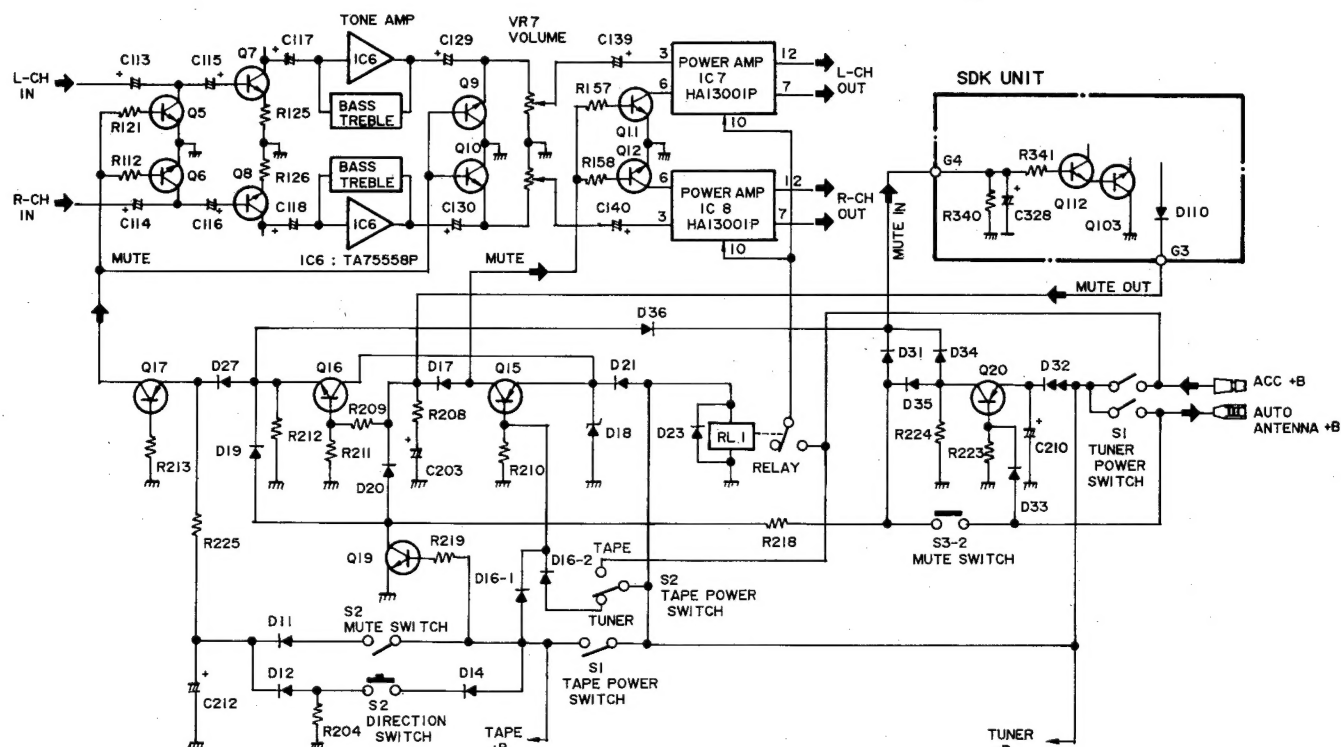


Fig. 20

○ Mute Signal Generating Circuit

The emitter of Q15 is connected to the + B line of the main amplifier through D21. At this time, C204 is charged. Q15 is normally not conducting, because the voltage reaching its base through D16-1 and D16-2 is equal to the voltage at the main amplifier + B. When a tape is ejected, however, Q15 goes "on," because the voltage at its base drops below the voltage at its emitter, and current flows to its collector.

Current then flows to the base of Q16 (emitter follower in the next stage), and muting voltage is generated at the emitter side of R212. This voltage passes through Q17, turning Q5, Q6 and Q9, Q10 "on," grounding the signal line and causing muting to take place. This suppresses the "popping" noise generated when power is switched off or when a tape is inserted or ejected. (In model KPH-4800SDK/WG, muting voltage is also applied to the base of Q112 through D36, causing muting in the DK interrupt signal line as well.

○ When Changing Bands

Muting takes place to suppress the "popping" noise generated when changing bands. When changing bands, DC voltage flows from the "band-change muting" switch (S3) through R218 and D20 to the base of Q16 and to R212 through R218 and D19. This causes muting to take place. D19 compensates for the delay in voltage rise as C203 is charged. The muting period is also determined by C203. In model KPH-4800SDK/WG, "band-change muting" is also applied through D31 to the base of Q112 of the SDK unit, causing muting in the DK interrupt signal line (traffic information) as well. Because the tuner is operating when in the tape player mode, that power source voltage turns Q16

5.8 SDK UNIT SECTION (SDK Switch is "ON") (Refer to Circuit Diagram for (KPH-4800SDK/WG))

The composite signal, which is inputted at pin 7 of IC2, passes through an internal buffer amplifier, and is outputted at pin 6. It is then inputted at terminal G8 of the SDK unit. The inputted composite signals is separated into two signals. One signal passes through C323, then through the low-pass filter consisting of R324, C324, R325, and C325. After the pilot signal (38 kHz) and SK signal (57 kHz) are eliminated, the signal is amplified at Q105 and Q106, then outputted at terminal G1 after passing through the buffer amplifier at Q107. (This route is the interrupt signal line during DK operation.) A mute circuit consisting of Q103, Q112 and Q104 is connected at the Q105 gate. Muting voltage is applied to Q112 through terminal G4 when power is switched on or off, during band changing, and so forth, thereby eliminating the "popping" noise inputted from terminal G8. Q103, Q112 and Q104 go "off" when there is a DK signal, outputting an interrupt signal at terminal G1.

The other signal is inputted at pin 15 of IC 10 after passing through C301. Because the capacity of C301 is low, it passes the high range component (the SK signal) easily. R304, which is connected to pin 2 of the reference power

"on." Tape + B is applied to the base of Q19 through R219, preventing the AF signal line (tape player, tuner) "band-change muting" from operating.

○ During FF/REW; During "Direction-Change"

Muting takes place to suppress the "popping" noise generated due to mechanism operation during FF/REW and "direction-change" Voltage is applied through D11 to the base of Q15 from the "mechanism muting" switch (S2), and through D12 from the "direction" switch (S2). This causes muting to take place. (In model KPH-4800SDK/WG, muting voltage is applied during the above operations through R225 only to the AF signal line (tape player, tuner), in order that interrupt can occur even during FF/REW and "direction change.")

C212 determines the muting period. In addition, if operation of SDK is attempted when in the tape player mode with the tuner power switch (S1) in the "on" position, the "A" contact of S1 closes before the "B" contact of that switch, charging C210 through D32. Before contact "B" closes, the base of Q20 is turned "on" through R223, muting voltage is generated at both ends of R224, Q112 is turned "on" through D34 and muting occurs in the DK interrupt signal line. Muting also occurs in the AF signal line (tape player, tuner) as Q5, Q6, and Q9, Q10 are turned "on" through D35, R218 and D20 and through D19 and D27. When contact "B" closes, voltage is applied to the base of Q20 through D33. This causes Q20 to stop conducting, thereby suppressing the generation of a mute signal. During SDK operation, the SK mute signal is applied directly to the bases of Q5, Q6 and Q9, Q10 from the SKD unit, causing muting of the AF signal line (tape player, tuner).

source, is the bias resistor for the impedance conversion amplifier inside the IC. The signal which is inputted at pin 15 passes through the impedance conversion amplifier inside the IC. Pre-emphasis is then applied due to the constant at pin 13, and the signal is outputted at pin 14.

A double-tuned circuit tuned to 57 kHz (the SK signal) is connected at pin 14, eliminating signals other than the SK signal. The signal outputted from this double-tuned circuit is inputted at pin 11, and is further amplified by an internal amplifier. When the output voltage at pin 14 exceeds the Q101 base-emitter voltage created by D101 and D102, Q101 goes "on." This causes the output of the double-tuned circuit to adjust the level of the signal inputted at pin 11. This prevents malfunction of the double-tuned circuit when that circuit is detuned.

At this time, gain may be adjusted (thereby adjusting SK sensitivity) by adjusting VR101, which is connected at pin 12.

In this way, the amplified SK signal is detected by an internal detector. Pin 9 outputs the existence of an SK signal. When an SK signal is detected, it goes "high." The DK signal amplitude-modulated by the SK signal is detected

and outputted at pin 7.

A 456 kHz ceramic oscillator is attached at pin 5. It is used both internally, and to output 57 kHz (1/8 of the above frequency) at pin 6, which is then inputted by IC12 (latter stage). The 125 kHz DK signal, which is outputted at pin 7 of IC10, passes through a band pass filter at IC11 (1/2). It is then inputted at the comparator at the latter stage IC11 (2/2) and shaped into a waveform. IC12 detects the existence of a DK signal. When the waveform shaped DK signal is inputted from IC11 at pin 2, pin 3 goes "high" and pin 4 goes "low." Pin 5, the connection to the SK indicator, goes "high" when an SK signal is detected, causing Q109 to go "on" and illuminating the indicator. Pin 6 is the ON/OFF pin for IC12. IC12 is activated when the base bias of Q108 is grounded through D108, causing the voltage at its collector to go "high." A 1.7 kHz alarm signal, which increases in volume in three stages, sounds 30 seconds after the SK signal ceases at pin 15. This output is applied to the base of Q107 through R318 and C327 and outputted at terminal G1.

When the voltage at pin 4 of IC12 is "high" (when neither SK nor DK signal is being detected), Q103 and Q104 are

"on," and muting occurs in the interrupt signal line.

Muting occurs in the AF signal line (tape player, tuner) when voltage is outputted at terminal G3. This pin is connected serially to Q110 and Q111. During operation of the tape player, terminal G5 is "high," and Q111 is "on" (controlled by base of Q110). If a DK signal is detected, pin 4 of IC12 goes "low," Q110 goes "off," and the output at terminal G3 goes "high." This causes sound from the tape player to be muted, and the interrupt signal line causes traffic information to be outputted.

If a DK signal is detected during operation of the tuner, pin 3 of IC12 goes "high" and Q102 causes Q111 to go "on." At this time, pin 4 goes "low," muting voltage is outputted at terminal G3, and muting occurs in the AF signal line (tape player, tuner). In the DK interrupt signal line, Q104 and Q103 go "off," and traffic information is outputted. When neither an SK signal nor a DK signal is being detected, pin 3 is "low," pin 4 is "high," Q110 is "on," and Q111 is "off." When muting voltage is outputted at terminal G3, muting also occurs in the DK interrupt signal line.

• SDK Interrupt Circuit

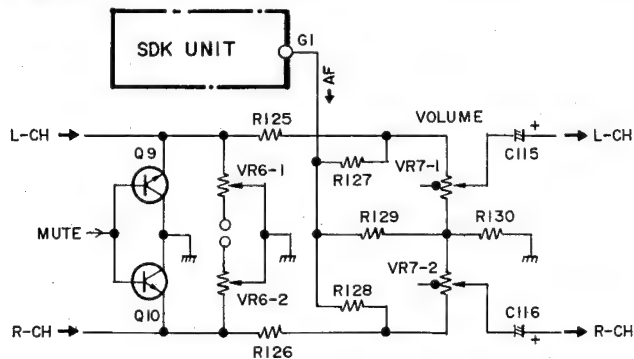


Fig. 21

During DK interrupt, the traffic information which is outputted from terminal G1 of the SDK unit is applied through R127 and R128 to the left and right channels of the early stage VR7 (because Q9 and Q10 are "on," the level is divided between R125 and R126). This output can be adjusted at VR7 (VOLUME). The output divided between R129 and R130 is inputted on the ground side of VR7, so that output occurs even when volume is adjusted to "minimum."

• Operation of Individual Sections when in the SDK Mode (SDK Switch "ON")

Pin Name Pin No.	Condition				Standard		
	Input Signal	AGC	Tape + B	SK-IND.	Interrupt Output	Alarm Out	Mute Out
Situation	*1 G8	G9	G5	G6	G1		G3
1	DK + AF	L	H	ON	○	X	H
2	DK + AF	L	L	ON	○	X	H
3	DK + AF	H	L	OFF	X	X	H
4	DK + AF	H	H	OFF	X	X	L
5	SK + AF	L	L	ON	X	X	L
6	AF	L	L	OFF	X	*1 ○	H
7	AF	L	H	OFF	X	*1 ○	L

*1 AF: 400 Hz, -10 dB
SK: 57 kHz \pm 10 Hz, 5 mV
DK: SK signal, 30% amplitude modulated at 125 Hz

*2 Alarm output occurs 30 seconds after changing from situations 1 - 5 to situation 6 or situation 7. Output increases in intensity in three steps.

5.9 LEVEL DIAGRAM

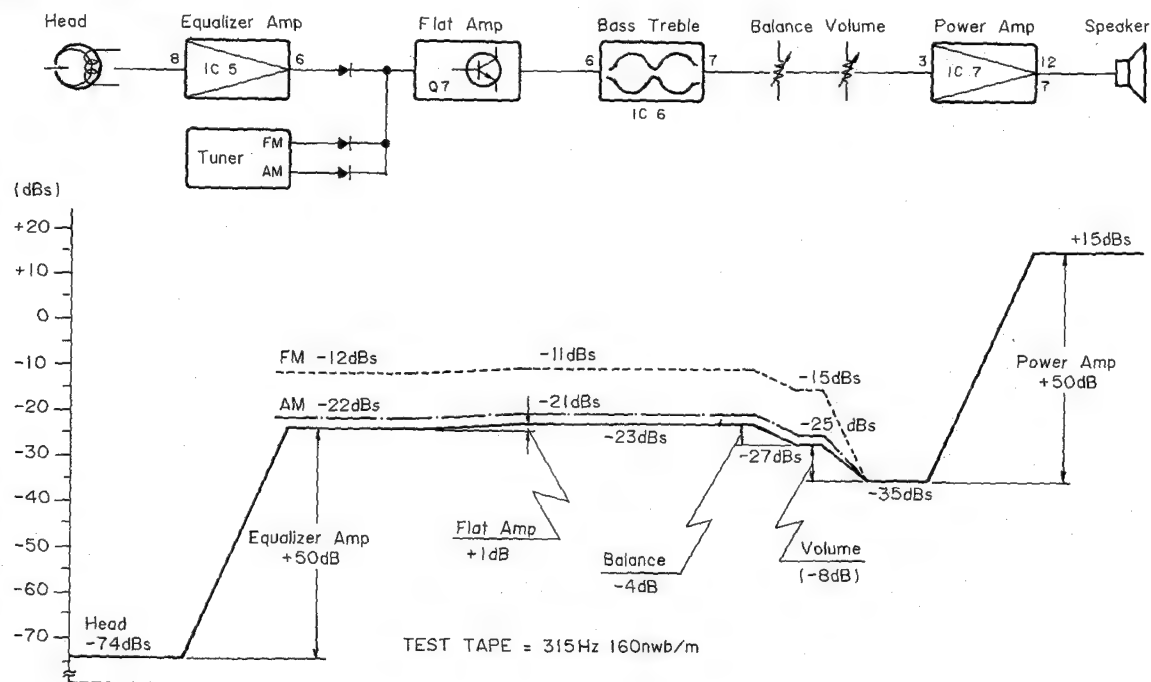


Fig. 22

6. DIAL STRINGING

1. To start dial stringing, remove the cassette mechanism unit at first.
2. Turn the tuning shaft fully to the right.
3. When dial stringing, follow the numerical sequence and operate securely as there is no looseness on the way.

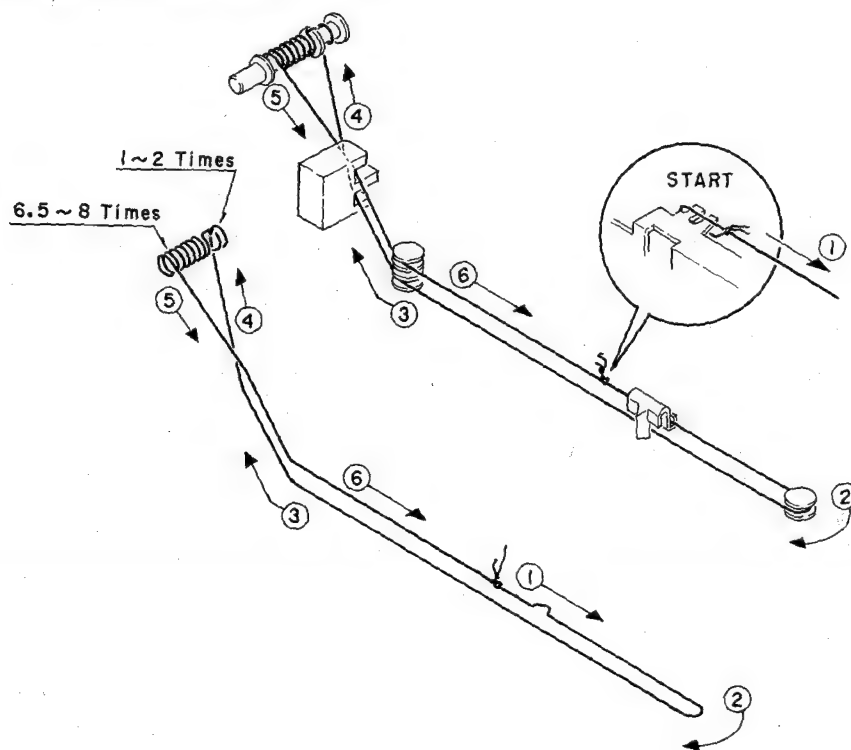


Fig. 23

7. ADJUSTMENT

Noise Generator

A noise generator is used when adjusting the FM IF. The noise generator circuit and pattern diagrams below are for reference.

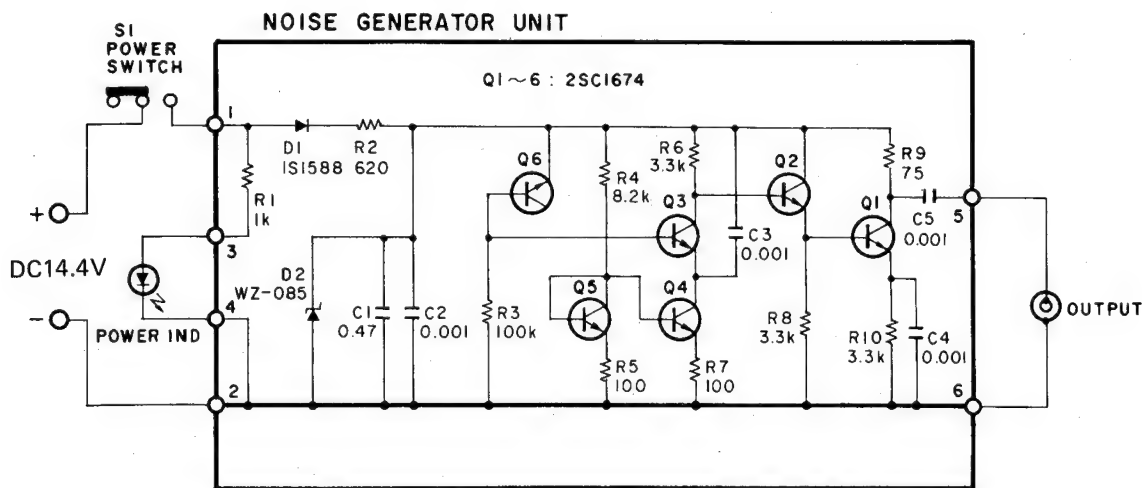


Fig. 24

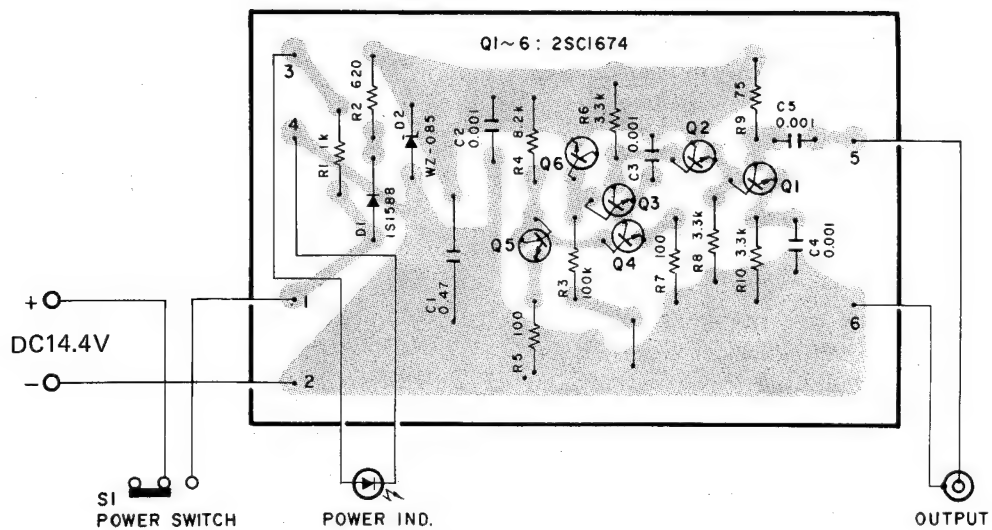


Fig. 25

7.1 FM IF ADJUSTMENT

• Connection Diagram

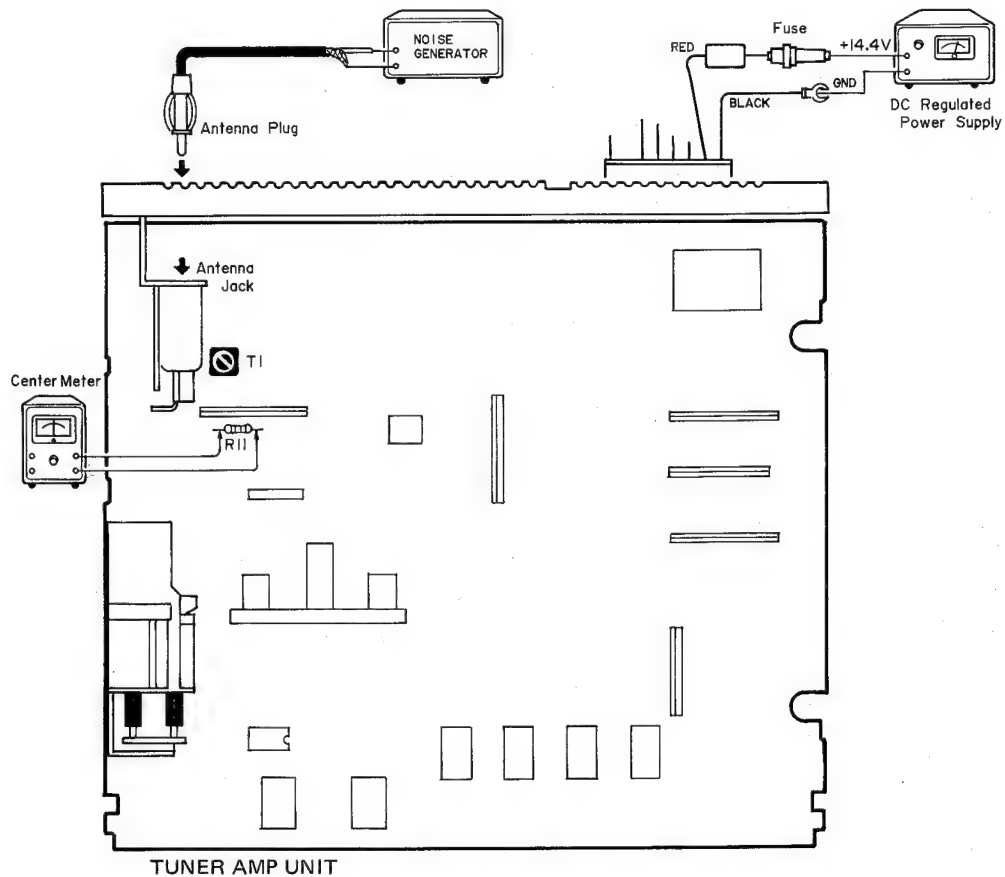


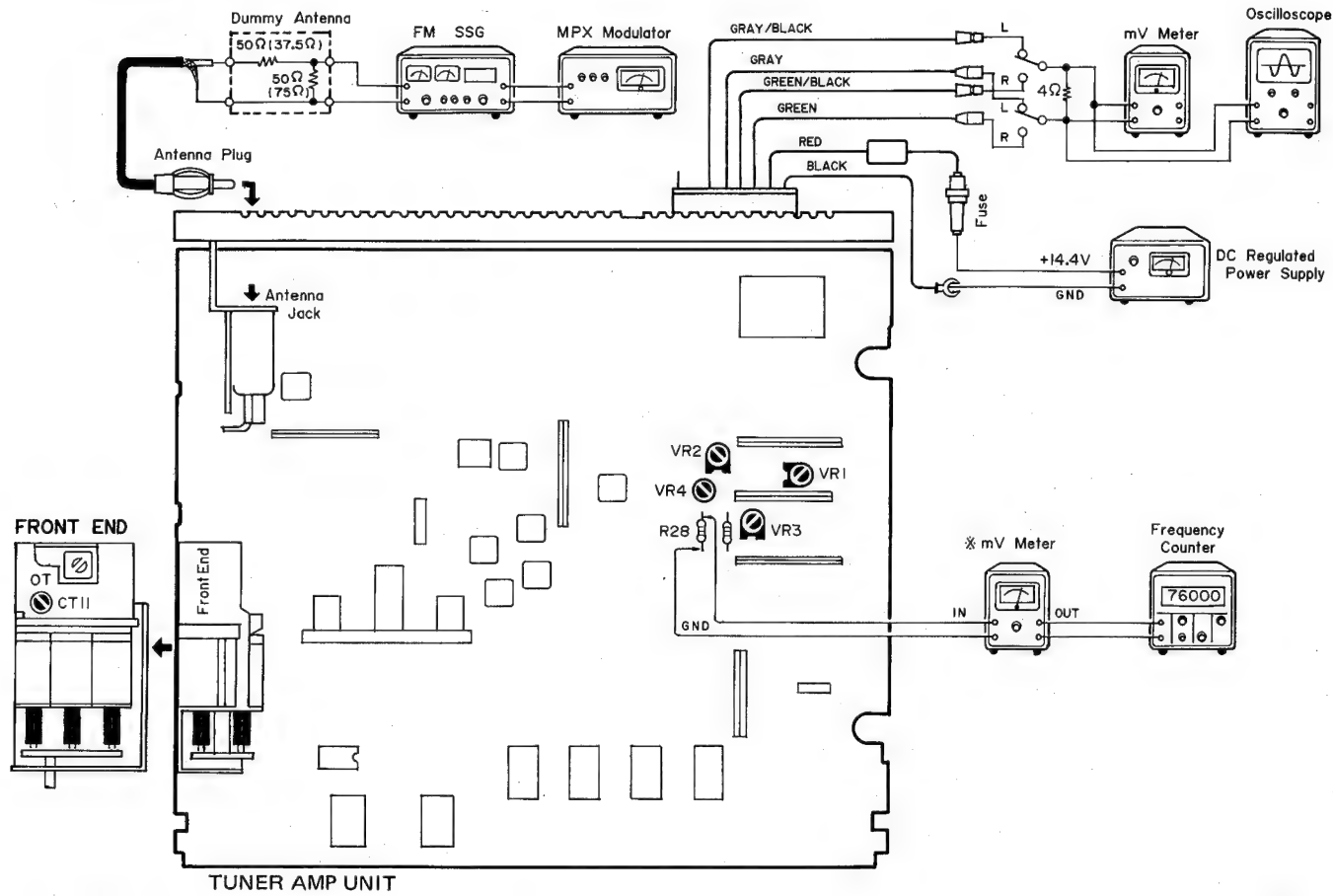
Fig. 26

• To Adjust

1. Add input signal from noise generator and adjust T1 so that the pointer of center meter will come to the center.

7.2 FM TRACKING ADJUSTMENT

• Connection Diagram



*mV Meter
Input Impedance More than 1MΩ
Input Capacity Less than 100pF

Fig. 27

• To Adjust (KPH-4800/EW,ES, KPH-4830/EW)

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.0MHz (400Hz, 100% modulation), output level 10 dB (μV)	Minimum	CT11 (FRONT END)	87.0MHz can be received.
2. 108.5MHz (400Hz, 100% modulation), output level 10 dB (μV)	Maximum		Check if 108.5MHz can be received.

• To Adjust (KPH-4800SDK/WG)

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.5MHz (400Hz, 100% modulation), output level 10 dB (μV)	Minimum	CT11 (FRONT END)	87.2MHz can not be received.
2. 107.5MHz (400Hz, 100% modulation), output level 10 dB (μV)	Maximum		Check if 108.3MHz can not be received.

7.3 FM MPX ADJUSTMENT

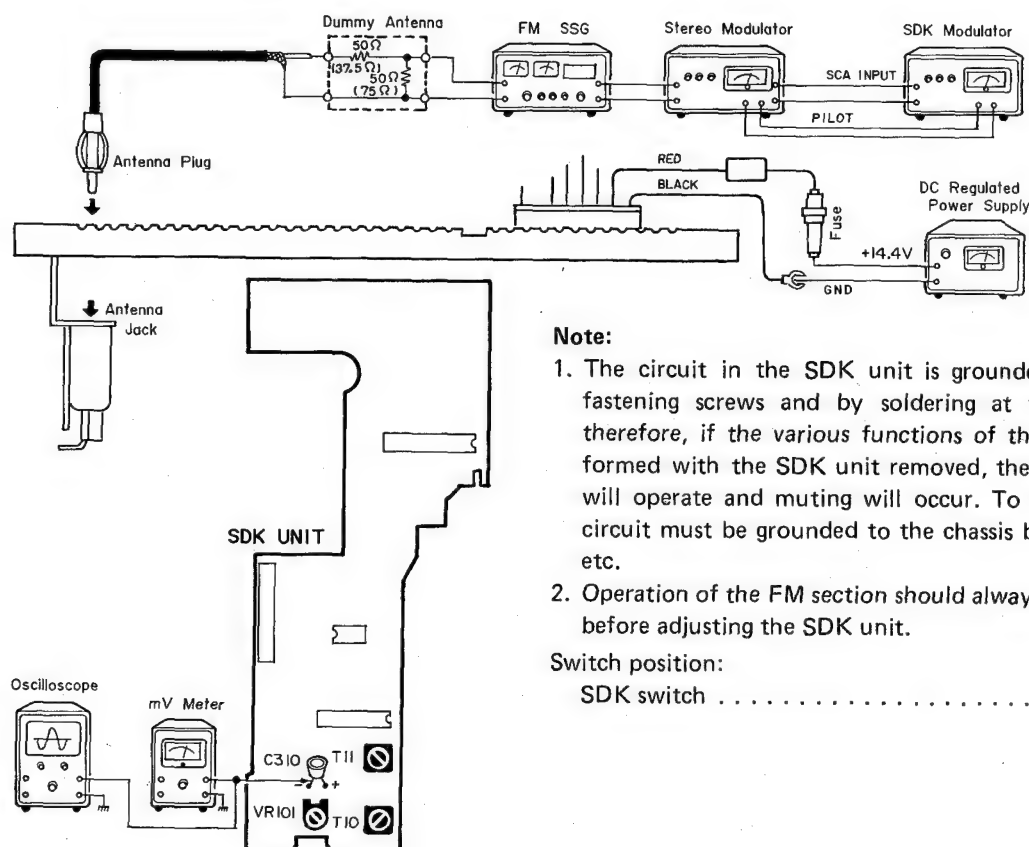
- Connection Diagram (Shown in Fig. 27)

- To Adjust

1. Adjust VR4 to make the frequency counter show 76kHz ± 120 Hz by applying an unmodulated signal of 98MHz and 60dB (μ V) from the FM SSG.
2. Adjust VR2 to reduce the oscilloscope wave to the minimum using only the modulation for the pilot signal (10%) and 60dB (μ V).
3. Adjust VR1 to obtain best separation by applying a stereo signal (1kHz, 100% modulation).
4. Adjust VR3 to obtain a 5dB separation by making the input signal 35dB (μ V).

7.4 SDK DECODER ADJUSTMENT (KPH-4800SDK/WG)

- Connection Diagram



Note:

1. The circuit in the SDK unit is grounded through the fastening screws and by soldering at the front end. therefore, if the various functions of the unit are performed with the SDK unit removed, the muting circuit will operate and muting will occur. To avoid this, the circuit must be grounded to the chassis by using a wire, etc.
2. Operation of the FM section should always be confirmed before adjusting the SDK unit.

Switch position:

SDK switch ON

Fig. 28

- To Adjust

1. Set the FM SSG as follows

Carrier	98MHz
Modulation (audio)	400Hz, 60% (Deviation 45kHz)
Modulation (SK)	57kHz, 5% (Deviation 3.75kHz)
Antenna Input Level	60dB (μ V)
2. Maximize resistance by turning VR101 clockwise.
3. Adjust T10 and T11 so that the mV meter reading is maximized.
4. Next, adjust the FM SSG attenuator so that antenna input is 15dB (μ V). Adjust VR101 so that the SK indicator is illuminated.

7.5 AM (MW/LW) IF ADJUSTMENT

• Connection Diagram

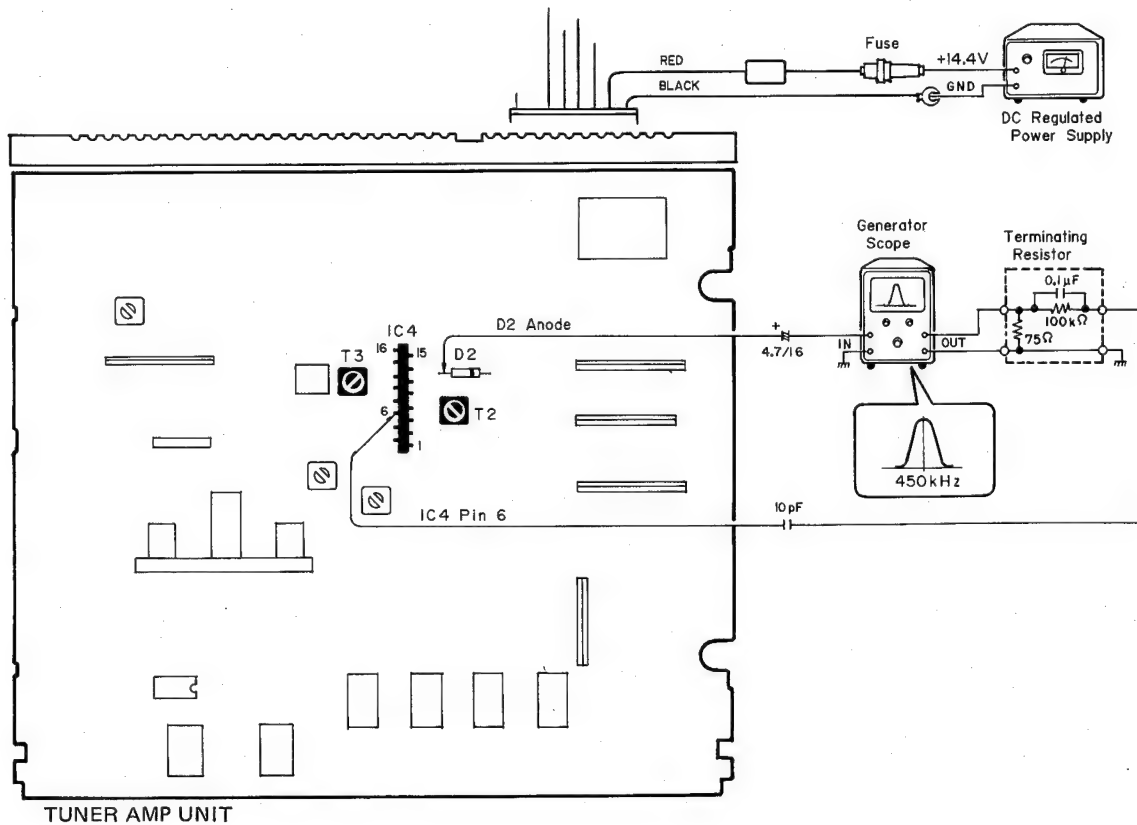


Fig. 29

• To Adjust

1. Set Generator Scope as follows:
 Frequency centering on sweep 450kHz
 Input level 0.3Vp-p/cm
 Output level 3mV~10mV
2. Turn the cores of T2, T3 and adjust so that U-curve will be at maximum amplitude and best symmetry.

7.7 AM (MW) TRACKING ADJUSTMENT

• Connection Diagram

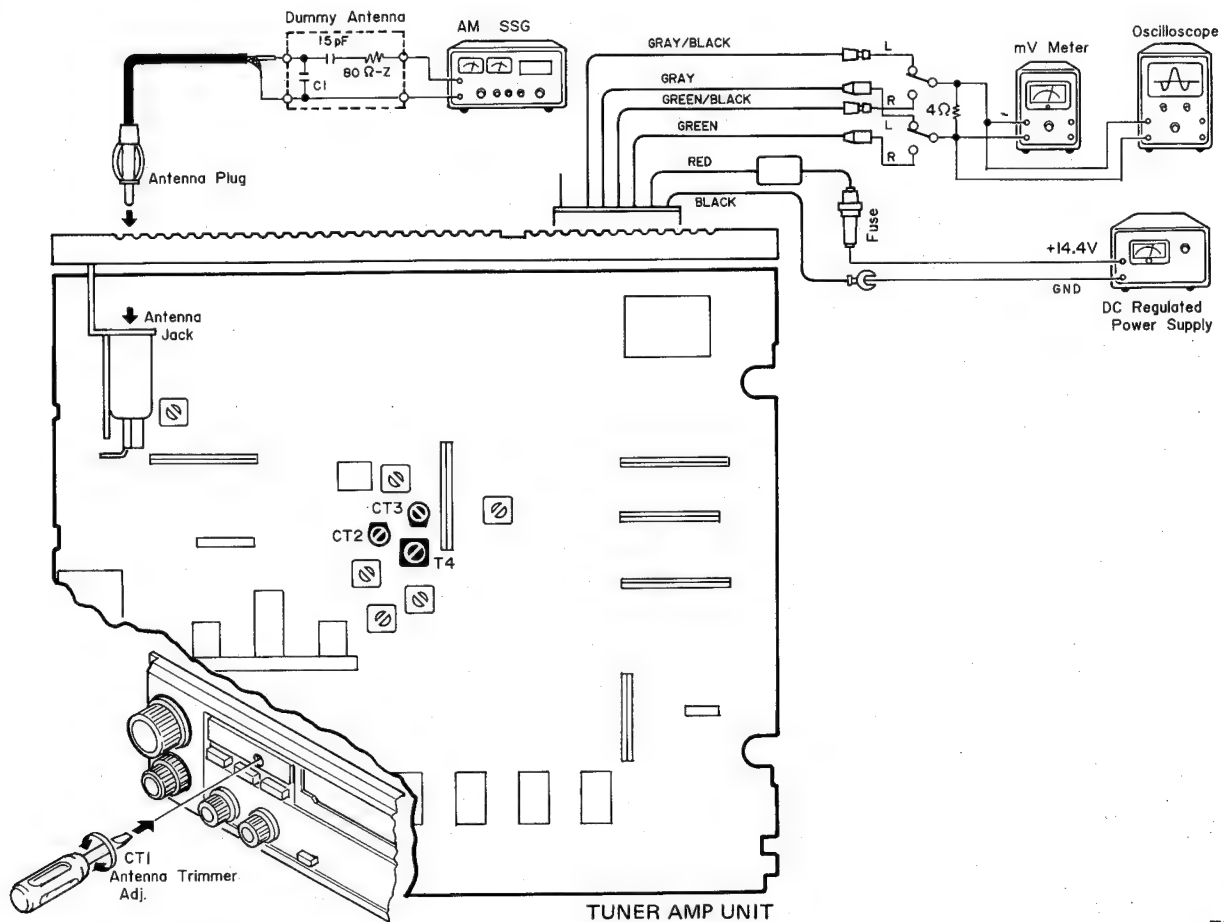


Fig. 30

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of the SSG.

• To Adjust

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 515kHz (400Hz, 30% modulation), output level 20 dB (μ V)	Minimum	T4	515kHz can be received
2. 1,650kHz (400Hz, 30% modulation), output level 20 dB (μ V)	Maximum	CT2	1,650kHz can be received
3 Repeat (1) and (2) alternately and adjust so that broadcast can be received at the frequency between 515kHz and 1,650kHz.			
4. 1,400kHz (400Hz, 30% modulation), output level 20 dB (μ V)	Tune to 1,400kHz	CT1, CT3	mV Meter at maximum

7.7 LW TRACKING ADJUSTMENT (KPH-4830/EW)

● Connection Diagram

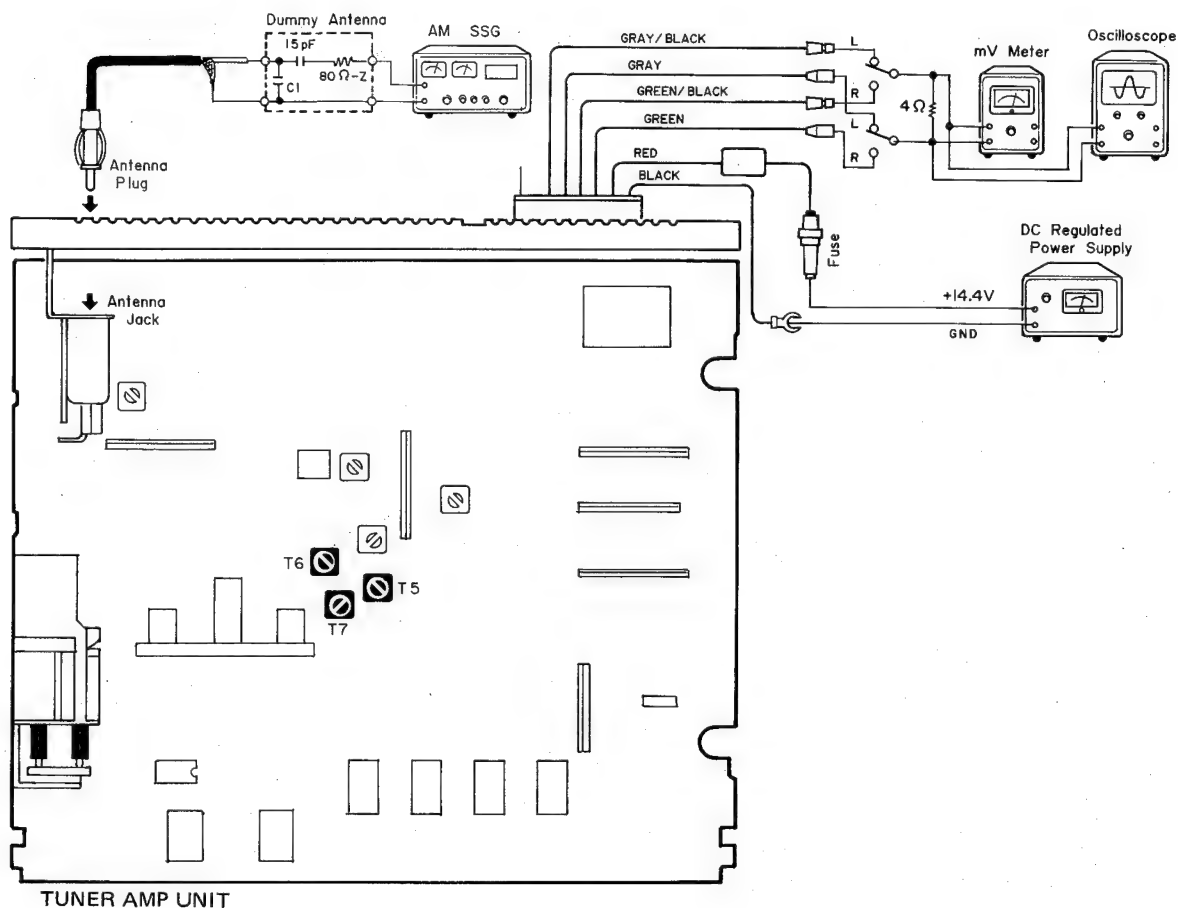


Fig. 31

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the received jack.

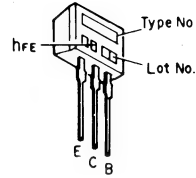
Z: Output impedance of the SSG.

● To Adjust

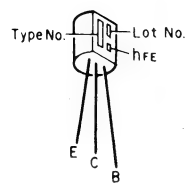
SSF Frequency	Pointer Position	Adjustment Point	Note
1. 140kHz (400Hz, 30% modulation), output level 40 dB (μV)	Minimum	T5	140kHz can be received
2. 290kHz (400Hz, 30% modulation), output level 40 dB (μV)	Maximum	T7	290kHz can be received
3. Repeat (1) and (2) alternately and adjust so that broadcast can be received at the frequency between 140kHz and 290kHz.			
4. 215kHz (400Hz, 30% modulation), output level 40 dB (μV)	Tune to 215kHz	T6	mV Meter at maximum

● ICs and Transistors

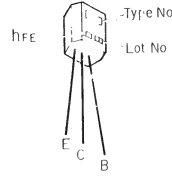
2SC2786



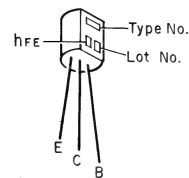
2SC1674



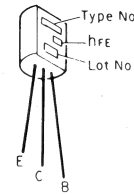
2SC2458
2SA1048



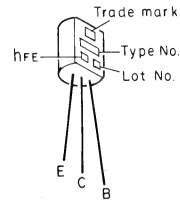
2SC1740S
2SC2060



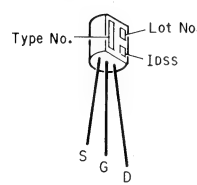
2SD667



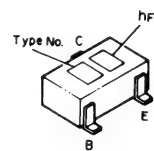
2SC2634NC



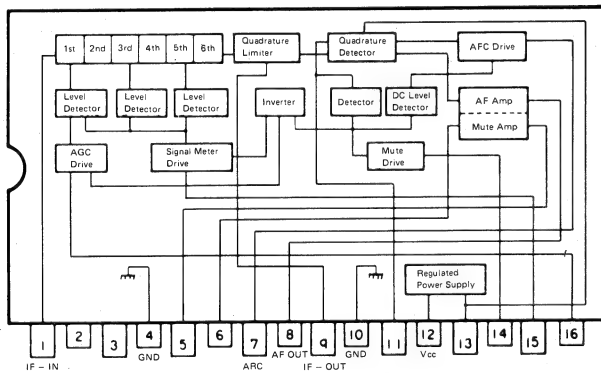
2SK30A



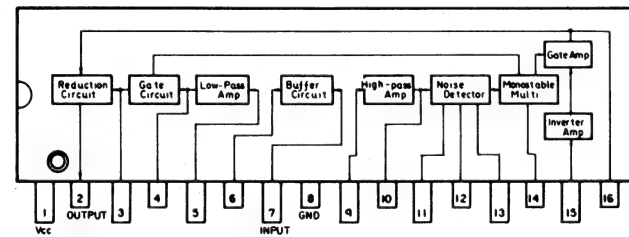
Part No.	Indication (Type No., hFE)
2SC2712-LG	LG
2SC2712-LL	LL
2SC2712-LY	LY
2SB709-AQ	AQ
2SB709-AR	AR
2SB709-AS	AS
2SD601-YQ	YQ
2SD601-YR	YR
2SD601-YS	YS



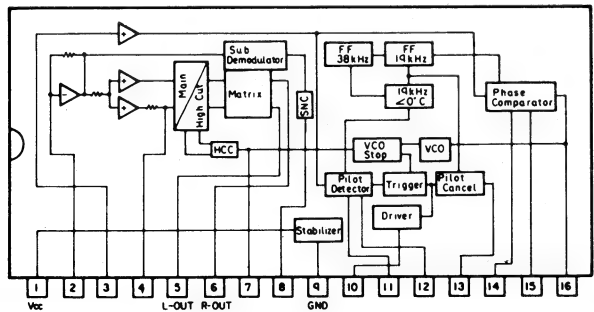
LA1140B



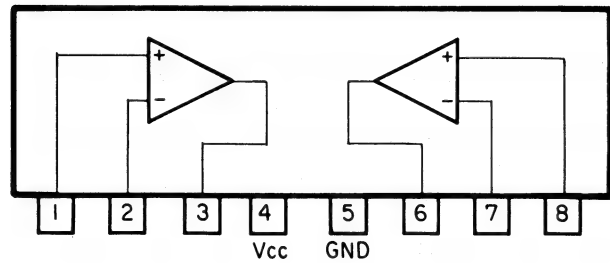
LA2110



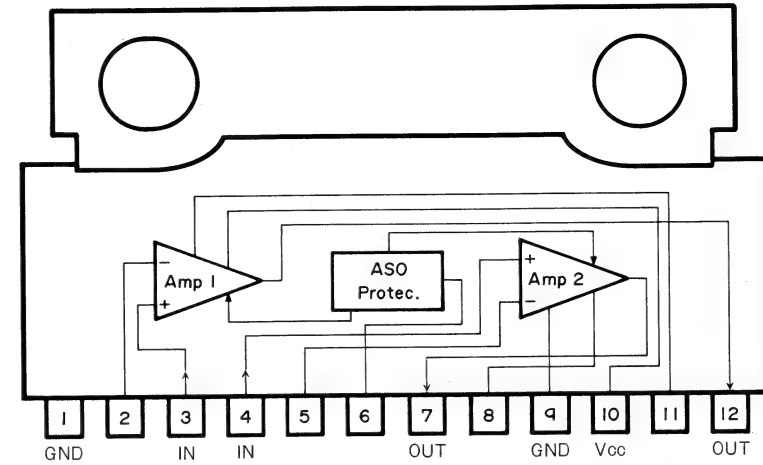
LA3376P



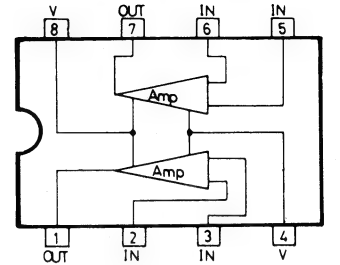
MB3106M



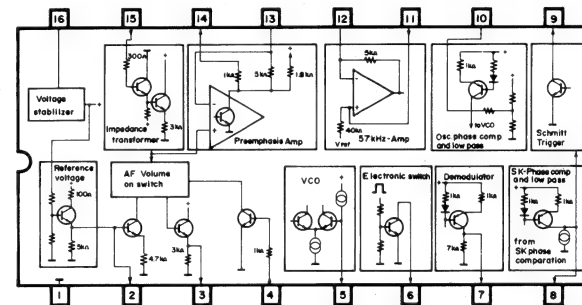
HA13001P



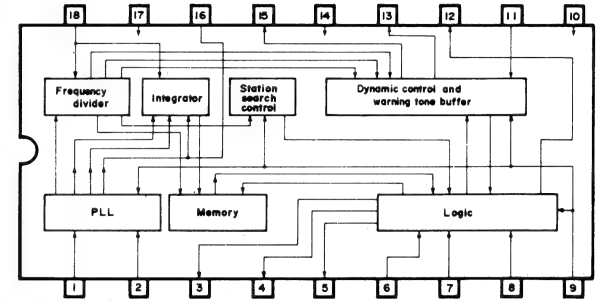
TA75558P



S0280



S551



8. SCHEMATIC CIRCUIT DIAGRAM (KPH-4800/EW,ES)

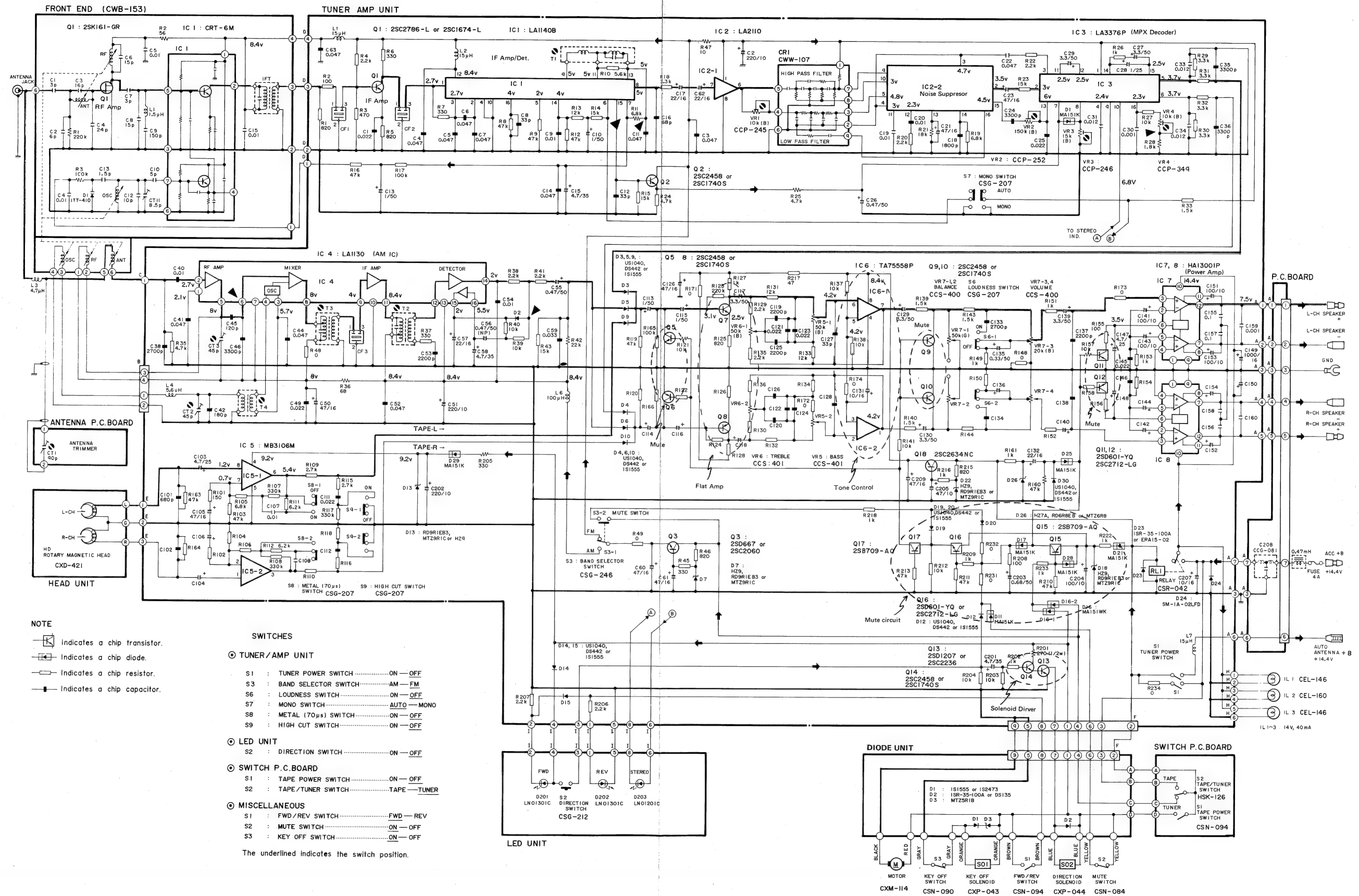
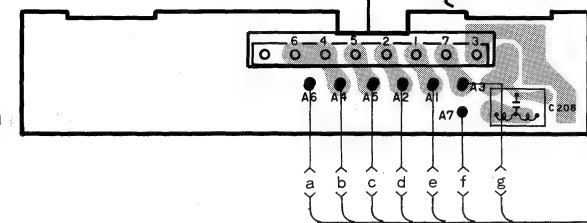


Fig. 32

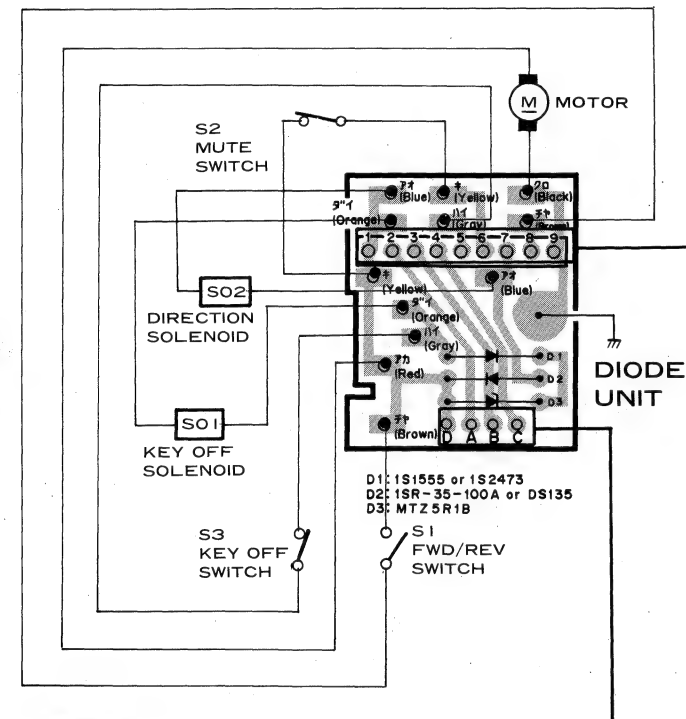
9. CONNECTION DIAGRAM (KPH-4800/EW,ES)

A

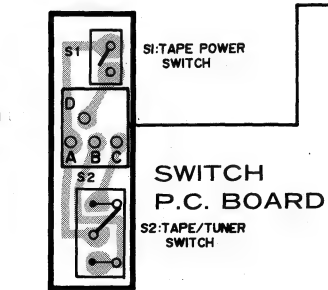
P.C. BOARD



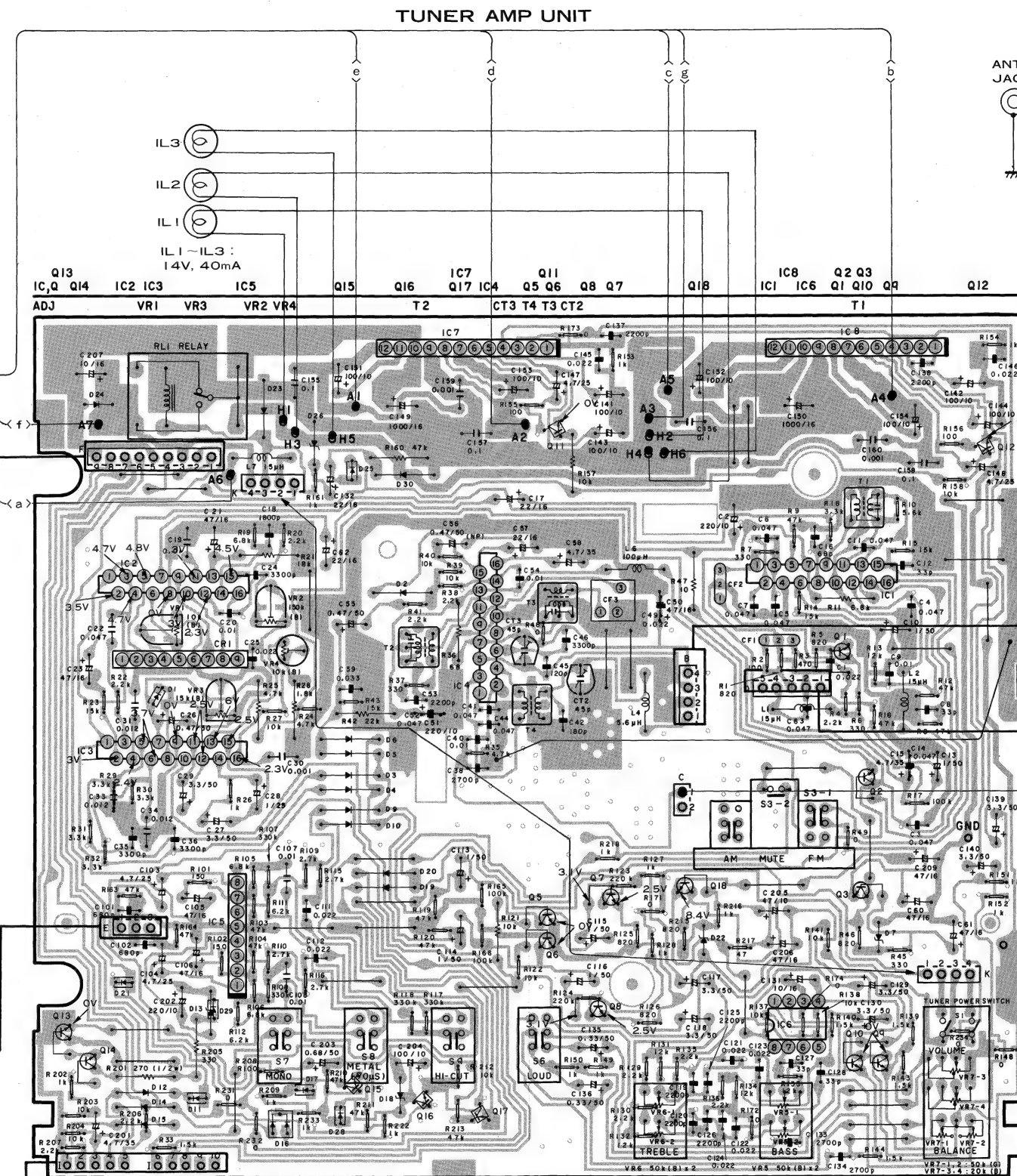
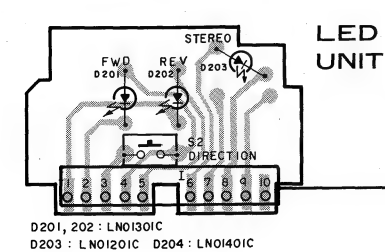
B



C



D



NOTE
Indicates a chip transistor.
Indicates a chip diode.
Indicates a chip resistor.
Indicates a chip capacitor.

ANTENNA P.C. BOARD

	1	2	3	4	5	6	7	8
IC5	1.2V	0.7V	5.4V	9.2V	0V	5.4V	0.7V	1.2V
IC6	4.2V	4.2V	4.2V	0V	4.2V	4.2V	4.2V	8.4V

IC1: LA1140B IC2: LA2110 IC3: LA3376P IC4: LA1130 IC5: MB3106M IC6: TA7555BP IC7: B: HA1300IP
Q1: 2SC2786-L or 2SC1674-L Q2: 5~10, 14: 2SC2458 or 2SC1740S Q3: 2SD667 or 2SC2060 Q11, 12, 16: 2SD601-YQ or 2SC2712-LG
Q13: 2SD1207 or 2SC2236 Q15, 17: 2SB709-AQ Q18: 2SC2634NC
D1, 11, 17, 21, 25, 28, 29: MA151K D2~6, 9, 10, 12, 14, 15, 19, 20, 30: US1040, DS442 or IS1555 D7, 13, 18, 22: HZ9, RD9RIE83 or MTZ9RIC D16: MA151WK
D23: ISR-35-100A or ERA15-02 D24: SM-1A-02LFD D26: HZ7A, RD6R8E8 or MTZ6R8

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	2.7V	2.7V	OV	2V	5V	5V	5V	OV	5V	8.4V	5V	4V	4V	4V	4V	4V
IC4	2.1V	2.7V	5.7V	8V	8V	8V	4V	OV	8.4V	4V	8.4V	2V	2V	5.5V	5.5V	5.5V
IC7	OV	OV	OV	3.5V	3.5V	3.5V	OV	14.4V	7.5V	7.5V	7.5V	7.5V	7.5V	7.5V	7.5V	7.5V
IC8	OV	OV	OV	3.5V	3.5V	3.5V	OV	14.4V	7.5V	7.5V	7.5V	7.5V	7.5V	7.5V	7.5V	7.5V

Fig. 33

10. SCHEMATIC CIRCUIT DIAGRAM (KPH-4830/EW)

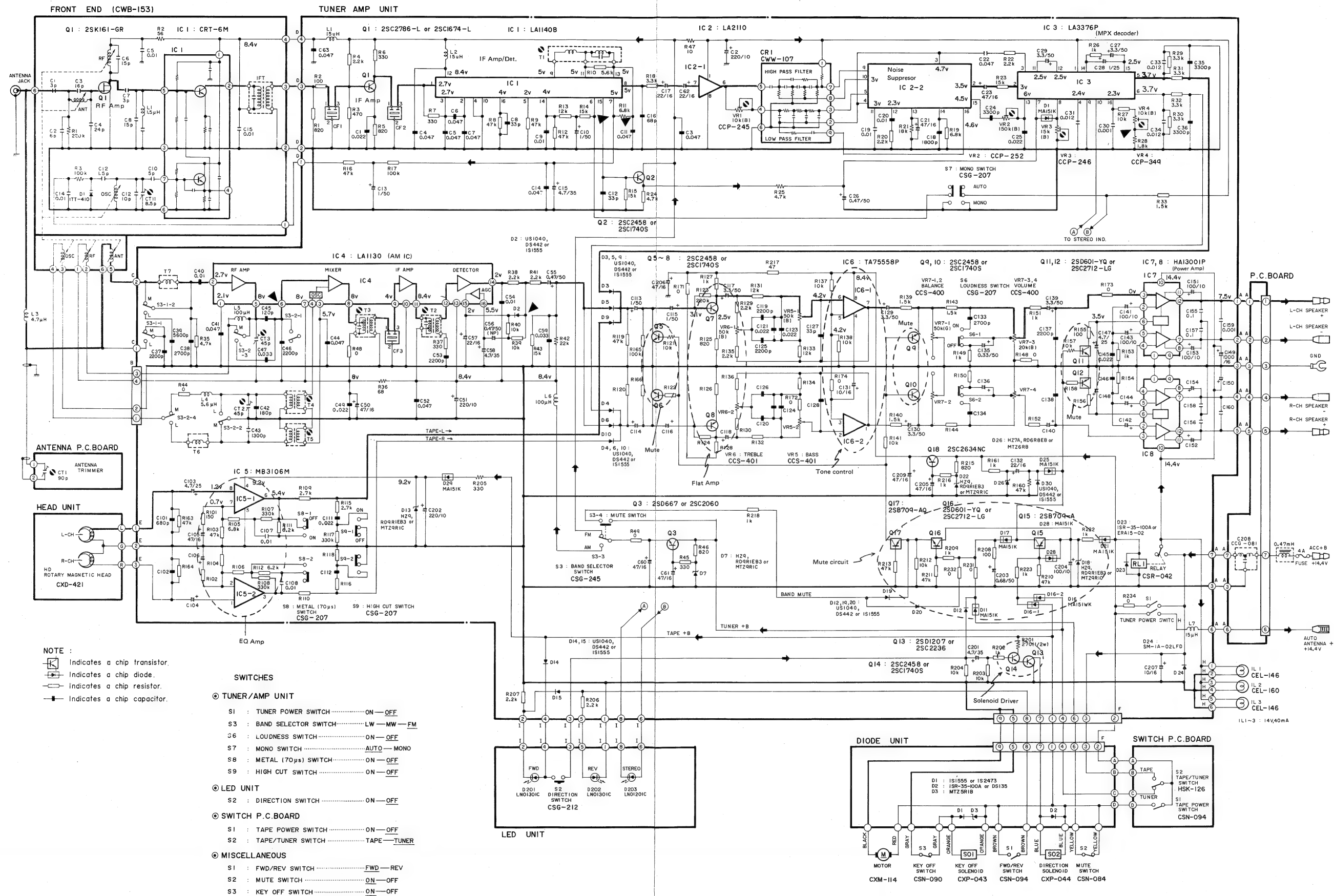
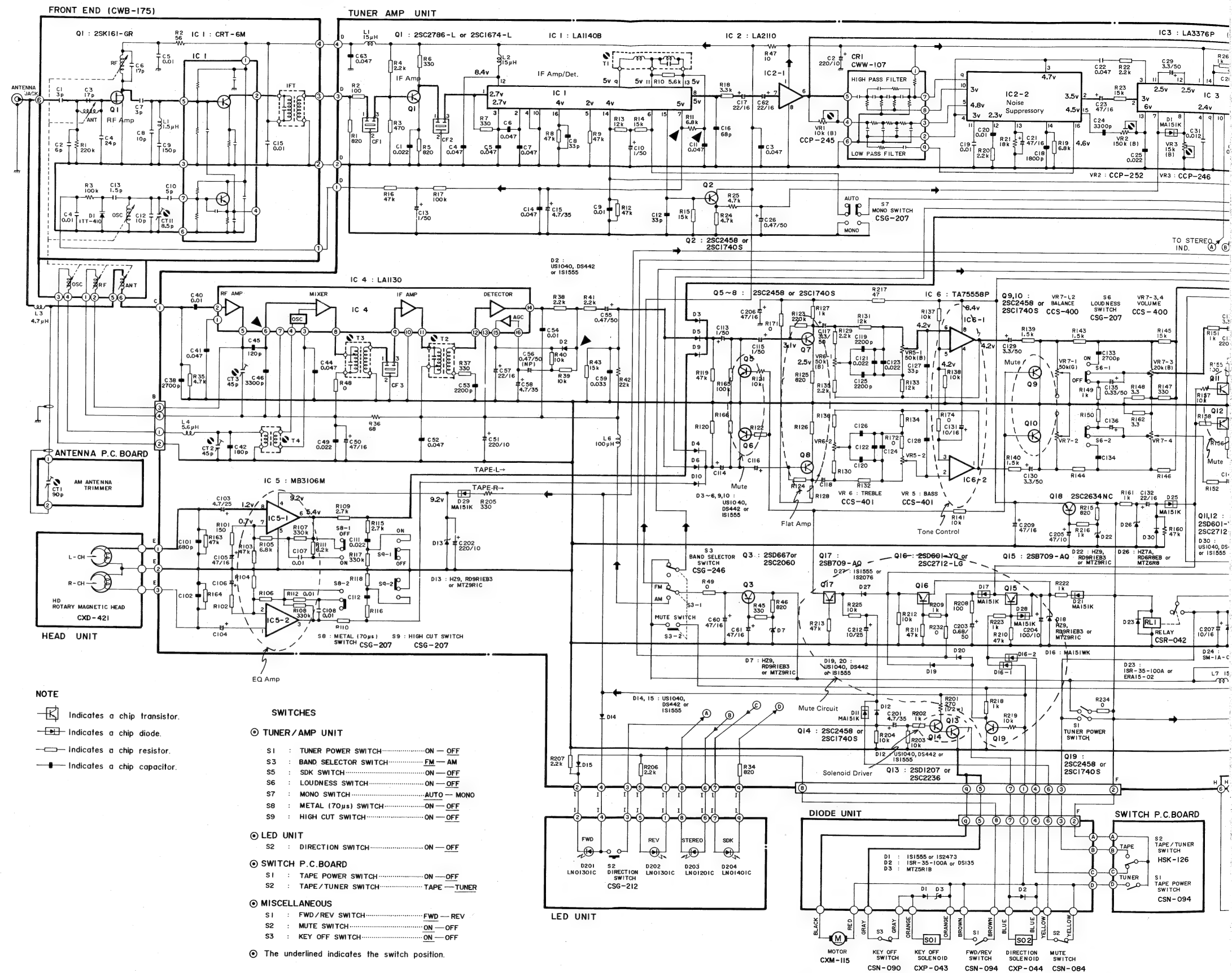
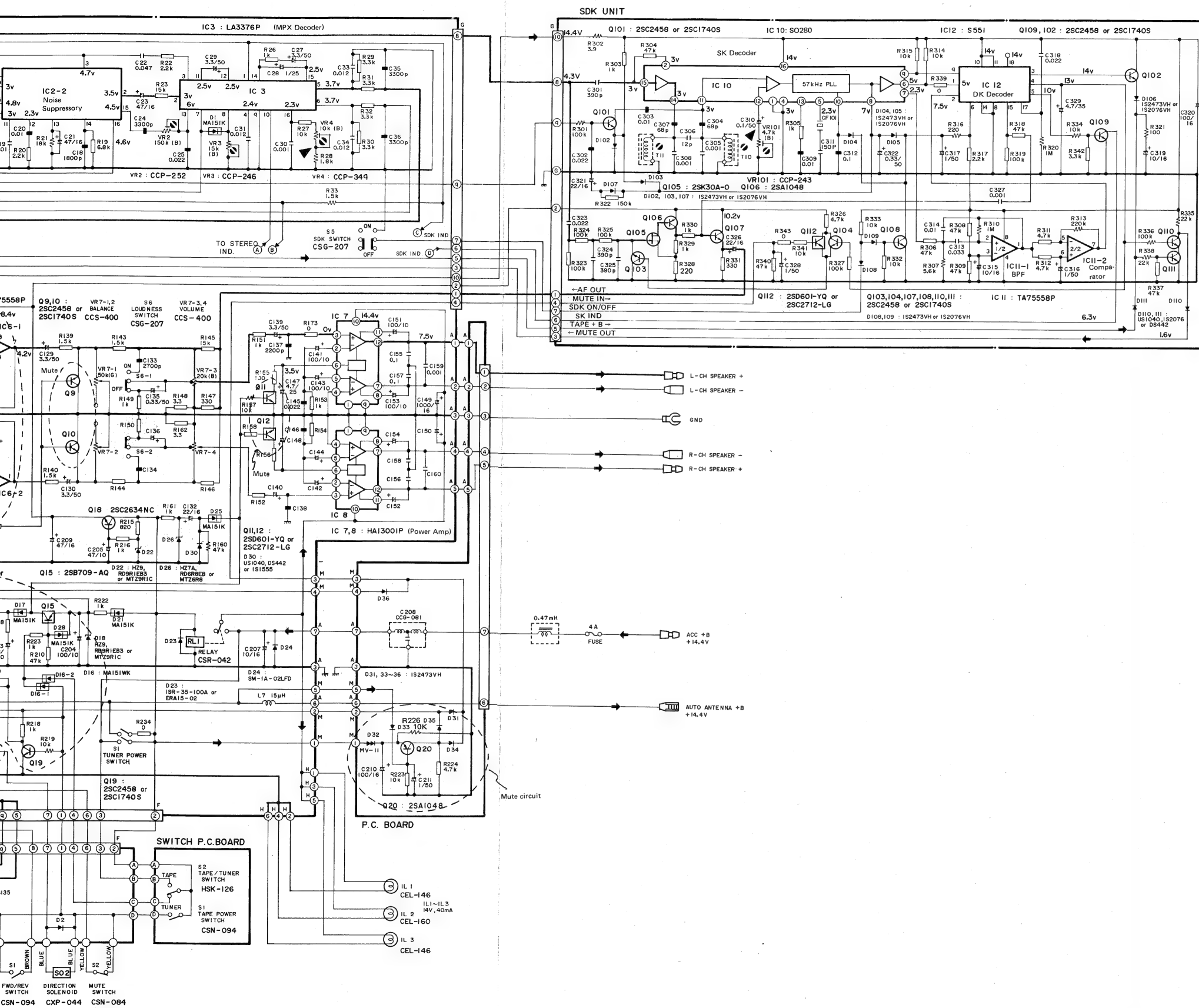


Fig. 34

12. SCHEMATIC CIRCUIT DIAGRAM (KPH-4800SDK/WG)





A

E

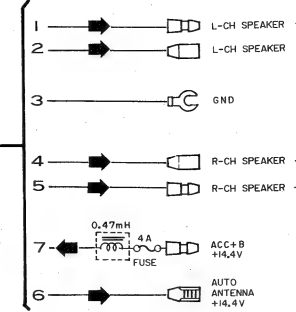
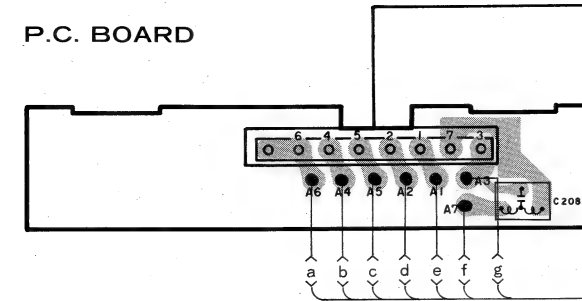
C

D

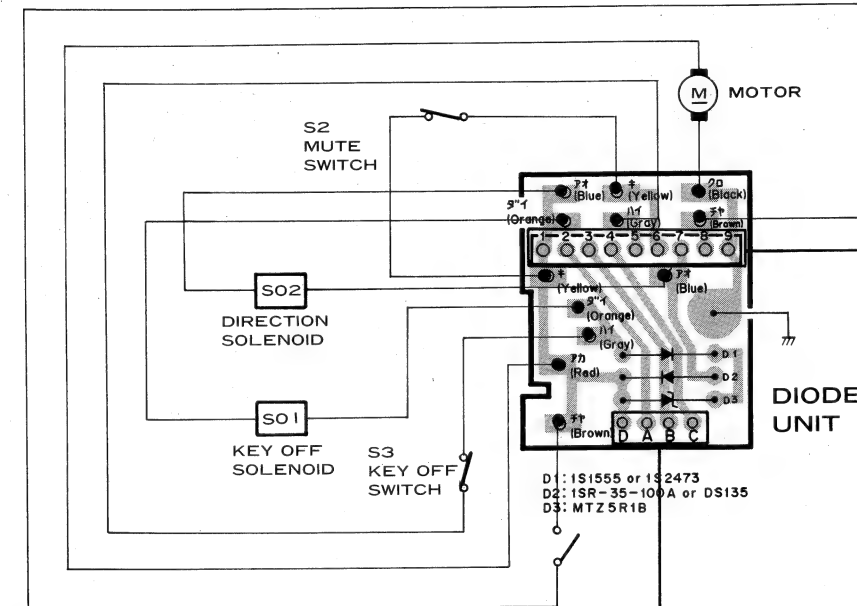
11. CONNECTION DIAGRAM (KPH-4830/EW)

A

P.C. BOARD

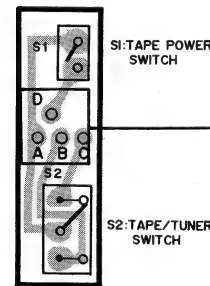


B

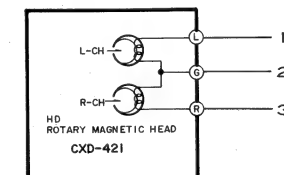


C

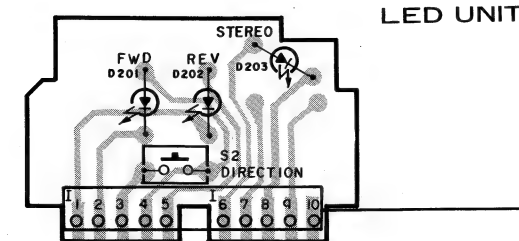
SWITCH P.C. BOARD



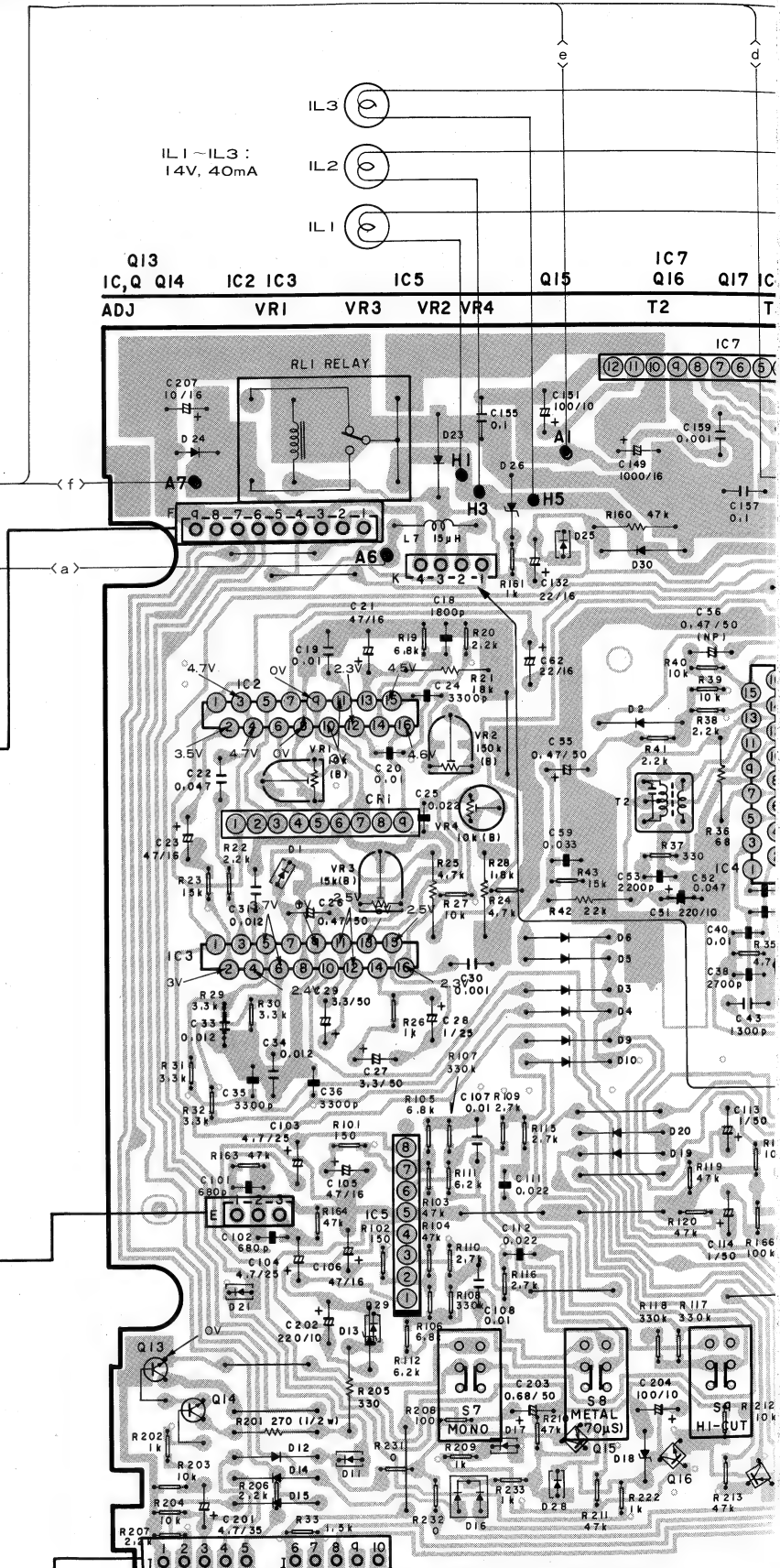
HEAD UNIT



D



D201, 202: LN0130IC
D203: LN0120IC D204: LN0140IC

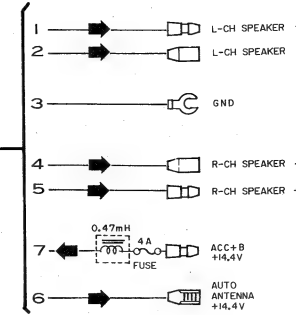
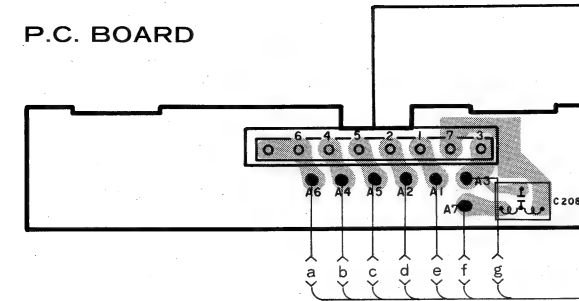


IC1: LA1140B IC2: LA2110 IC3: LA3376P IC4: LA1130 IC5: LA1130
Q1: 2SC2786-L or 2SC1674-L Q2: 5~10, 14: 2SC2458 or 2SC1740
Q13: 2SD1207 or 2SC2236 Q15, 17: 2SB709-AQ Q18: 2SC2634
D1, 11, 17, 21, 25, 28, 29: MA151K D2~6, 9, 10, 12, 14, 15, 19, 20, 30: US104
D23: 1SR-35-100A or ERA15-02 D24: SM-1A-02LFD D26: 1SR-35-100A

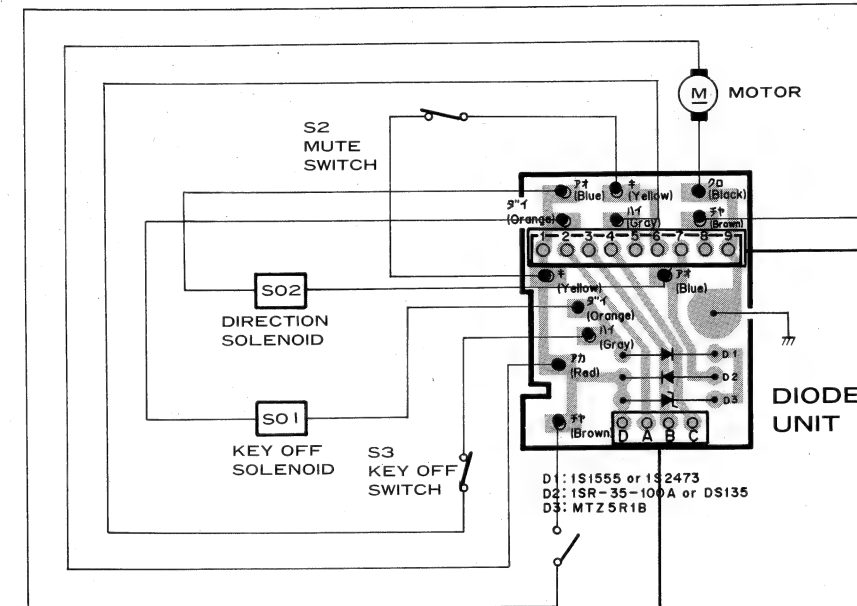
11. CONNECTION DIAGRAM (KPH-4830/EW)

A

P.C. BOARD

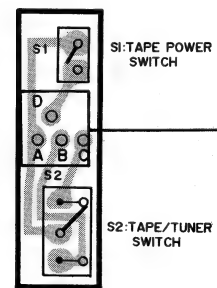


B

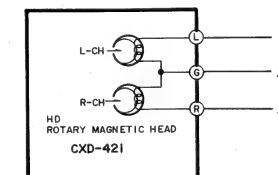


C

SWITCH P.C. BOARD

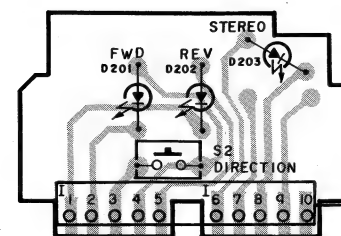


HEAD UNIT

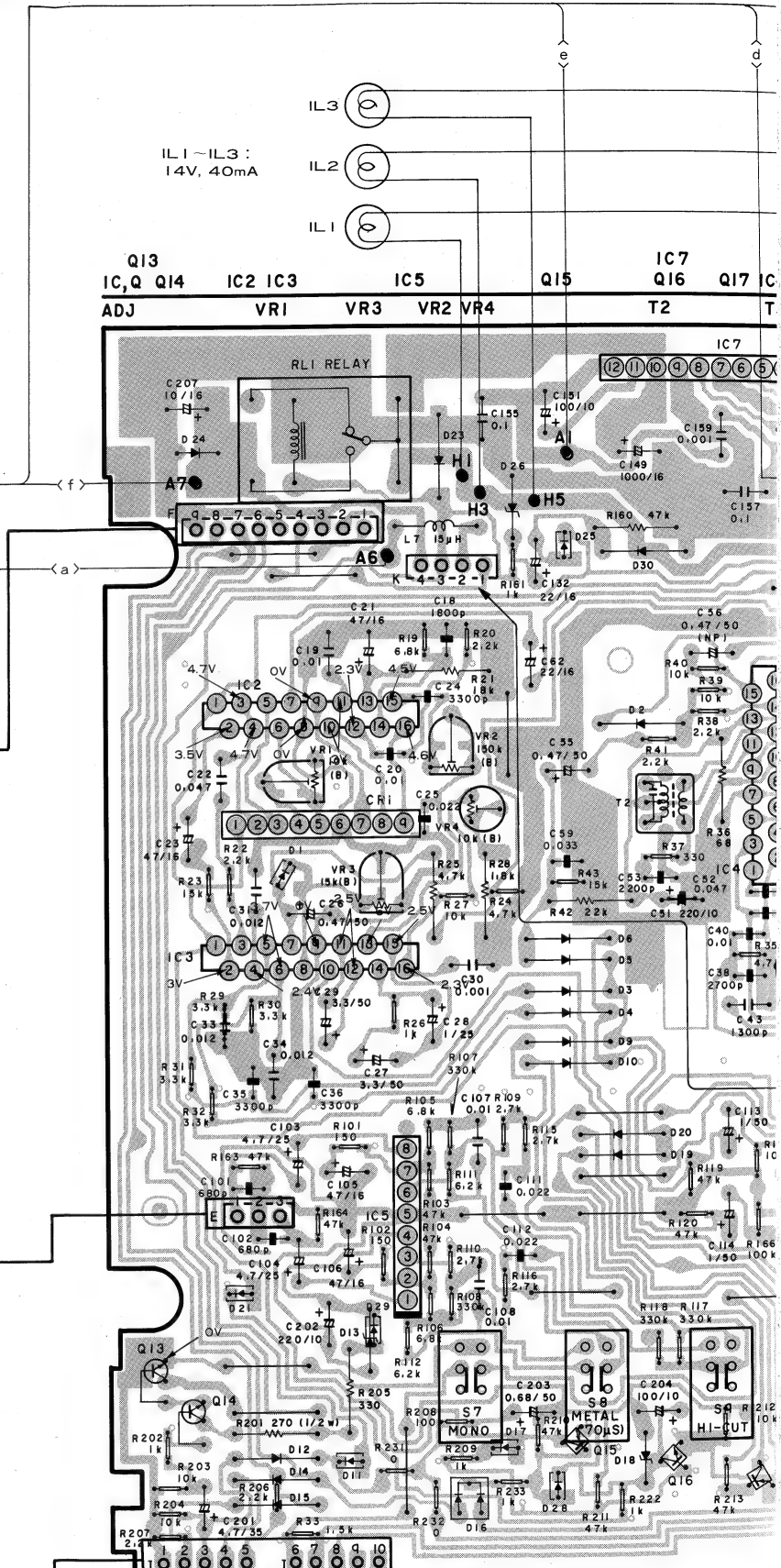


D

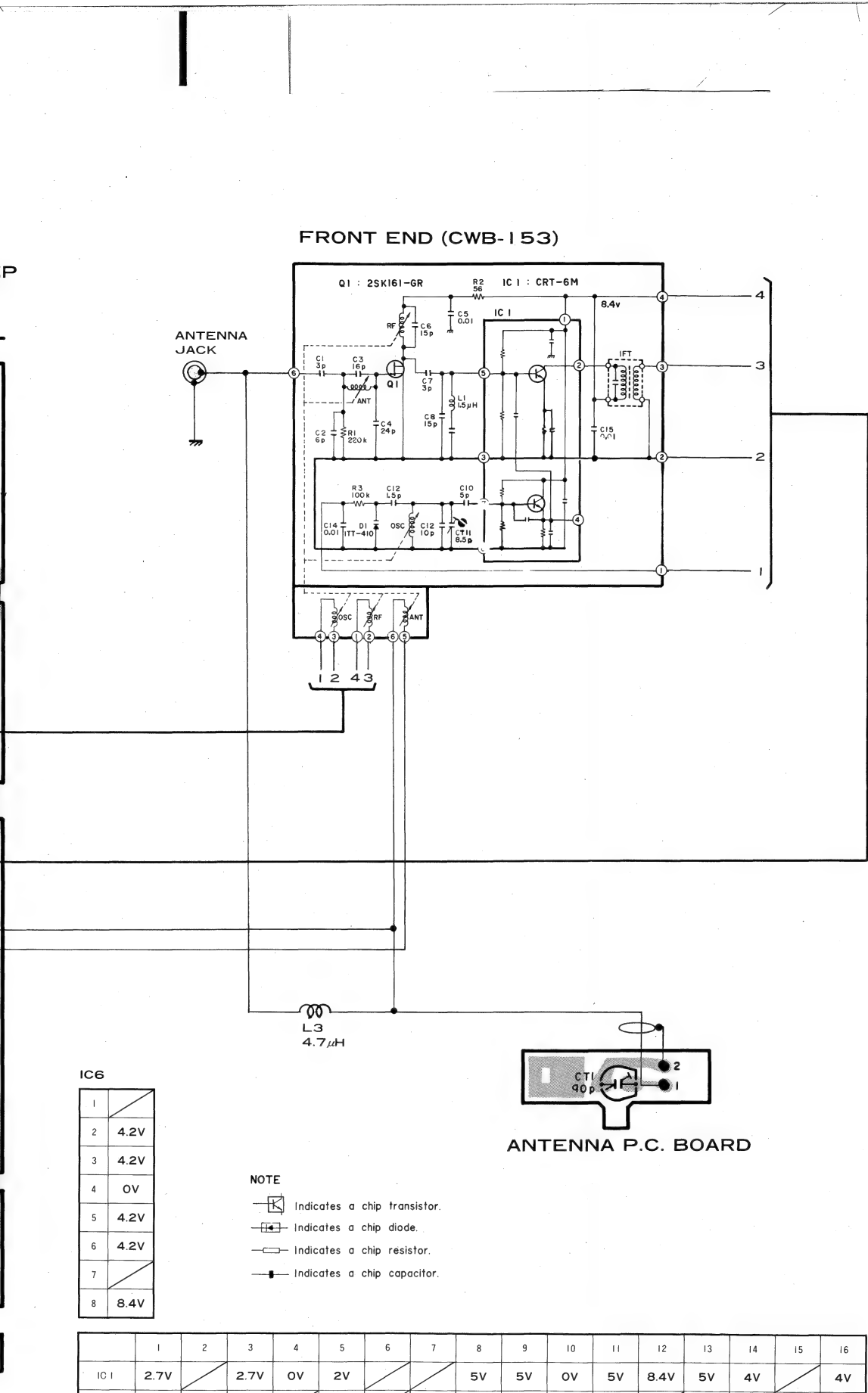
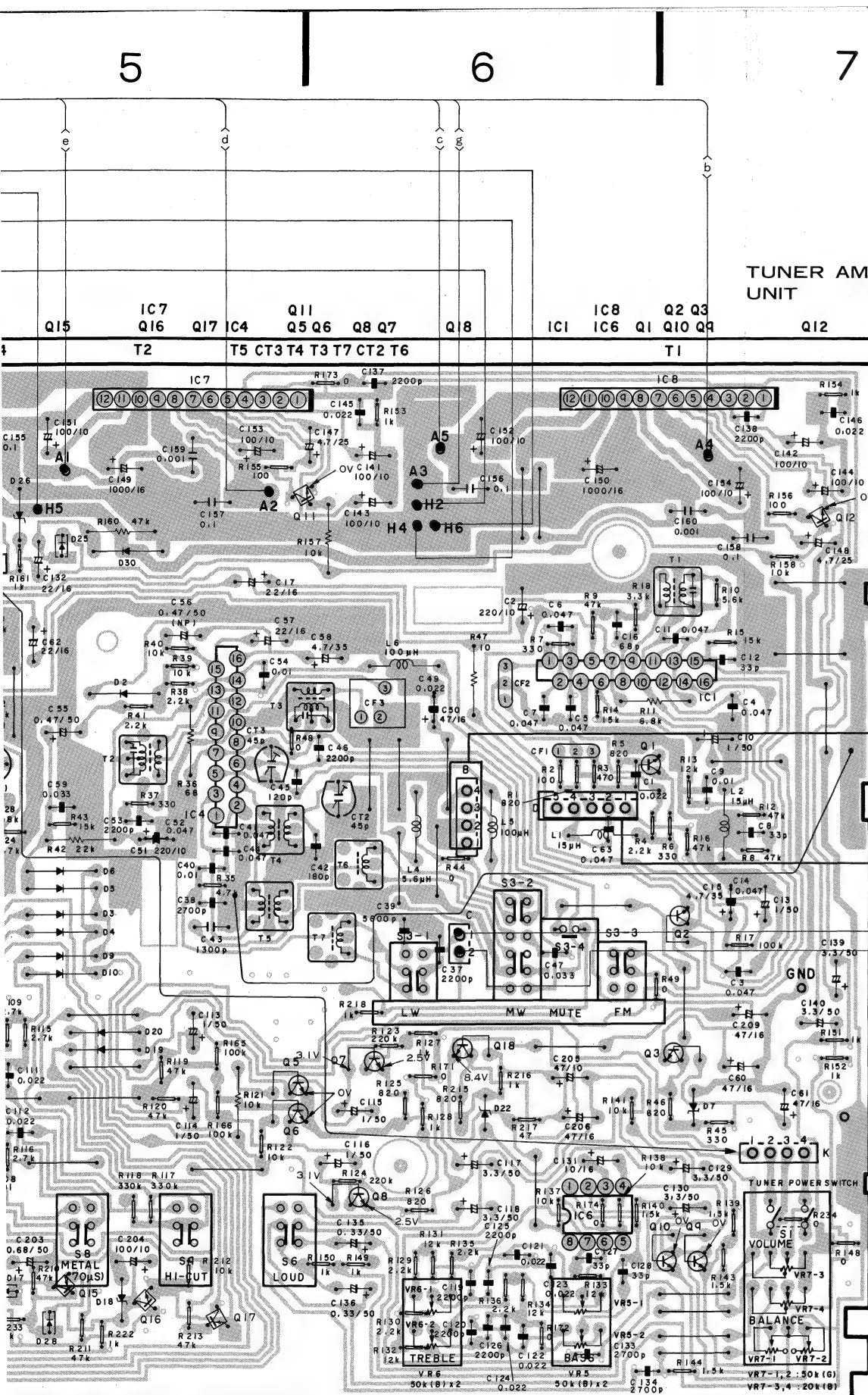
LED UNIT



D201, 202: LN0130IC
D203: LN0120IC D204: LN0140IC



IC1: LA1140B IC2: LA2110 IC3: LA3376P IC4: LA1130 IC5: LA1130
Q1: 2SC2786-L or 2SC1674-L Q2: 5~10, 14: 2SC2458 or 2SC1740
Q13: 2SD1207 or 2SC2236 Q15, 17: 2SB709-AQ Q18: 2SC2634
D1, 11, 17, 21, 25, 28, 29: MA151K D2~6, 9, 10, 12, 14, 15, 19, 20, 30: US104
D23: ISR-35-100A or ERA15-02 D24: SM-1A-02LFD D26: 2SC2634

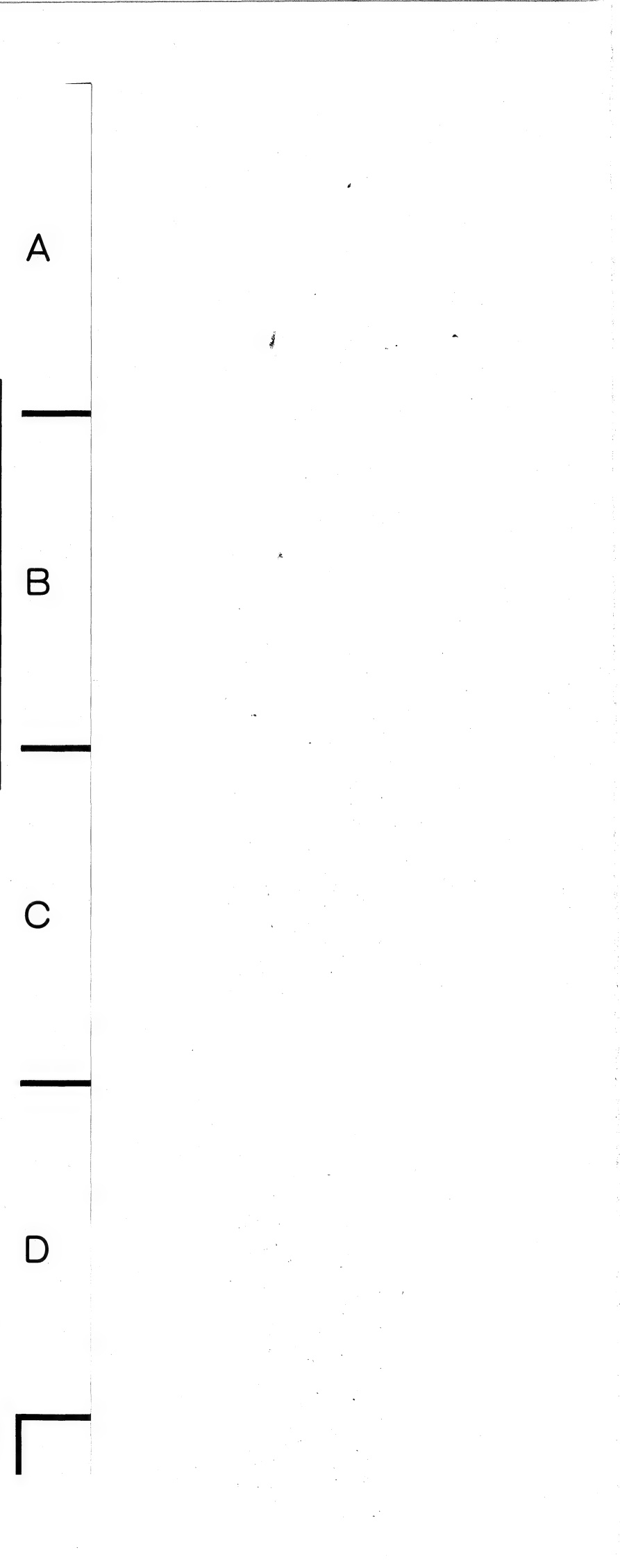


376P IC4: LA1130 IC5: MB3106M IC6: TA75558P IC7,8: HA13001P
 ~10,14: 2SC2458 or 2SC1740S Q3: 2SD667 or 2SC2060 Q11,12,16: 2SD601-YQ or 2SC2712-LG
 3B709-AQ Q18: 2SC2634NC
 10,12,14,15,19,20,30: US1040, DS442 or IS1555 D7,13,18,22: HZ9, RD9RIEB3 or MTZ9RIC DI6: MA151WK
 24: SM-1A-02LFD D26: HZ7A, RD6R8EB or MTZ6R8

IC6	1	2	3	4	5	6	7	8
1								
2	4.2V							
3	4.2V							
4	0V							
5	4.2V							
6	4.2V							
7								
8	8.4V							

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	2.7V		2.7V	0V	2V			5V	5V	0V	5V	8.4V	5V	4V		4V
IC4	2.1V	2.7V	5.7V		8V		8V	8V	4V	0V	8.4V		8.4V	2V	2V	5.5V
IC7	0V			0V	3.5V				0V	14.4V		7.5V				
IC8	0V			0V	3.5V				0V	14.4V		7.5V				

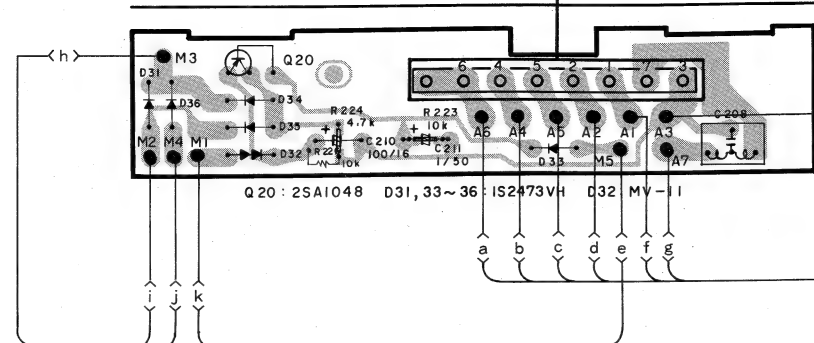
Fig. 35



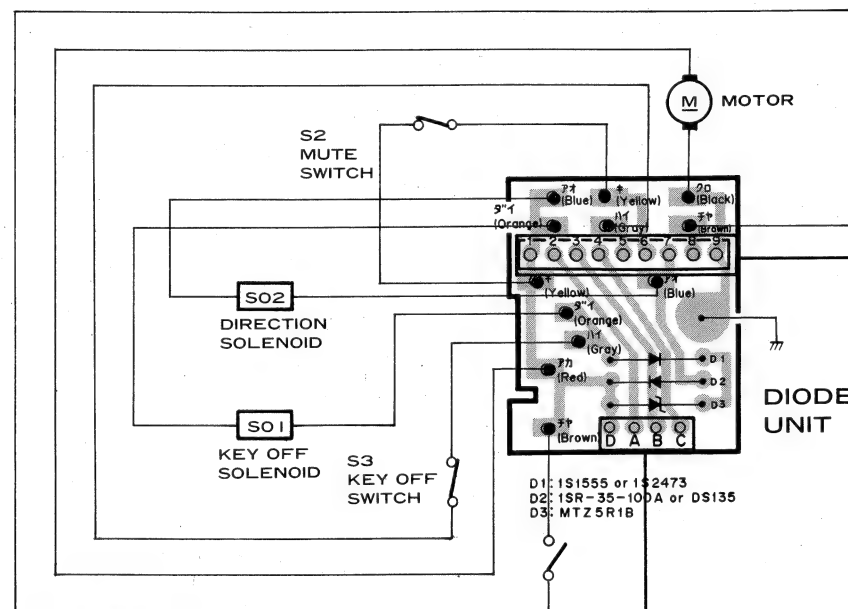
13. CONNECTION DIAGRAM (KPH-4800SDK/WG)

A

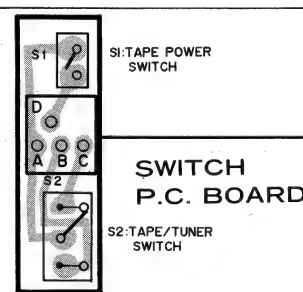
P.C. BOARD
Q Q20



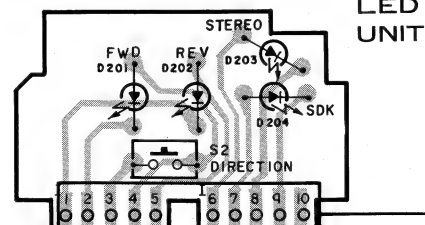
B



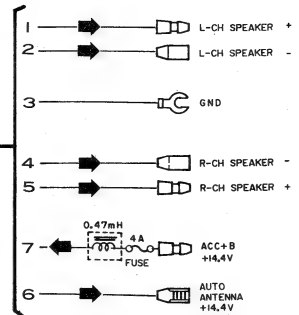
C



D

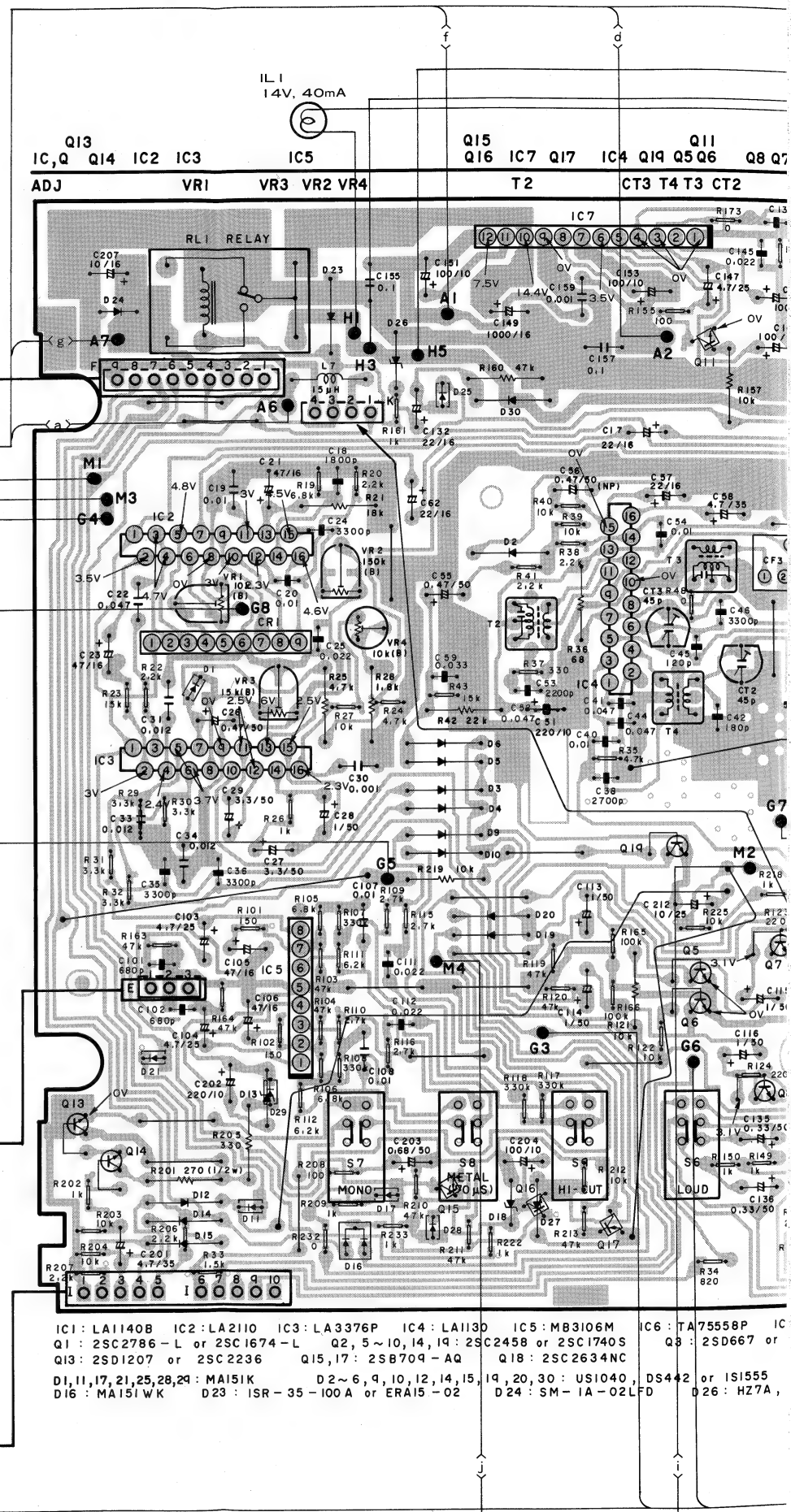


D201, 202: LN01301C
D203: LN01201C D204: LN01401C

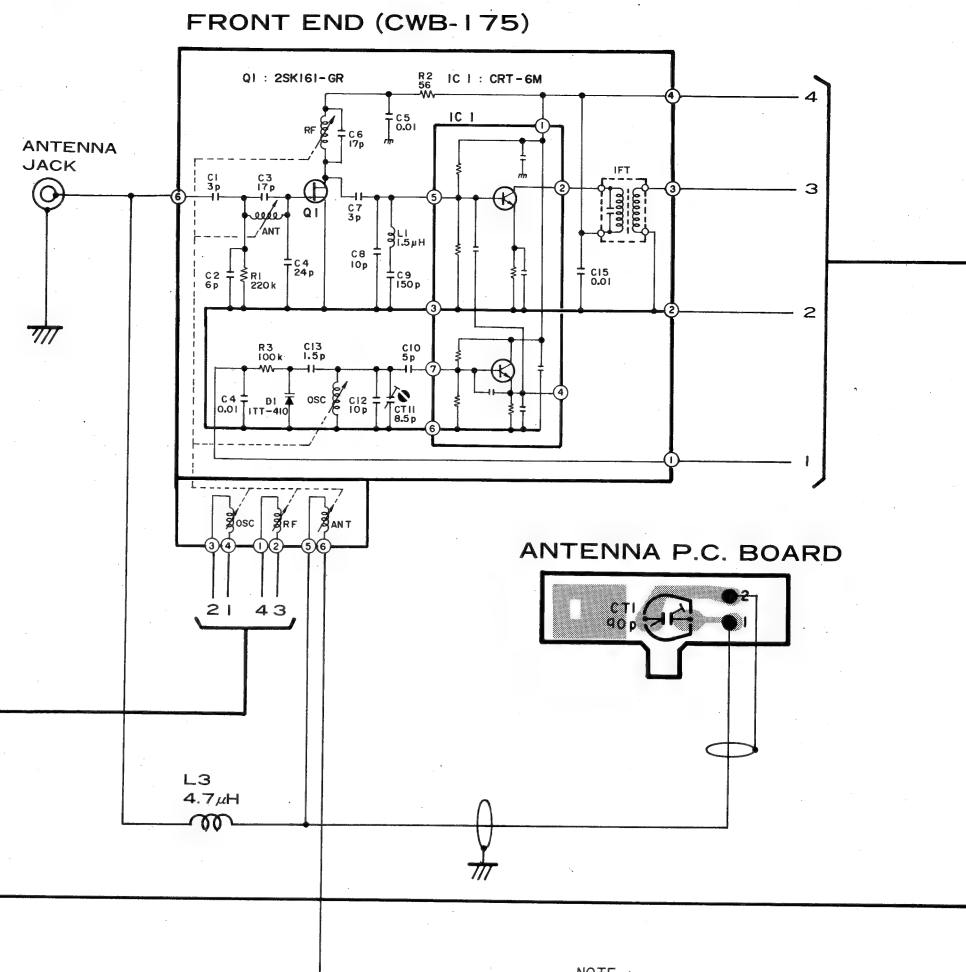
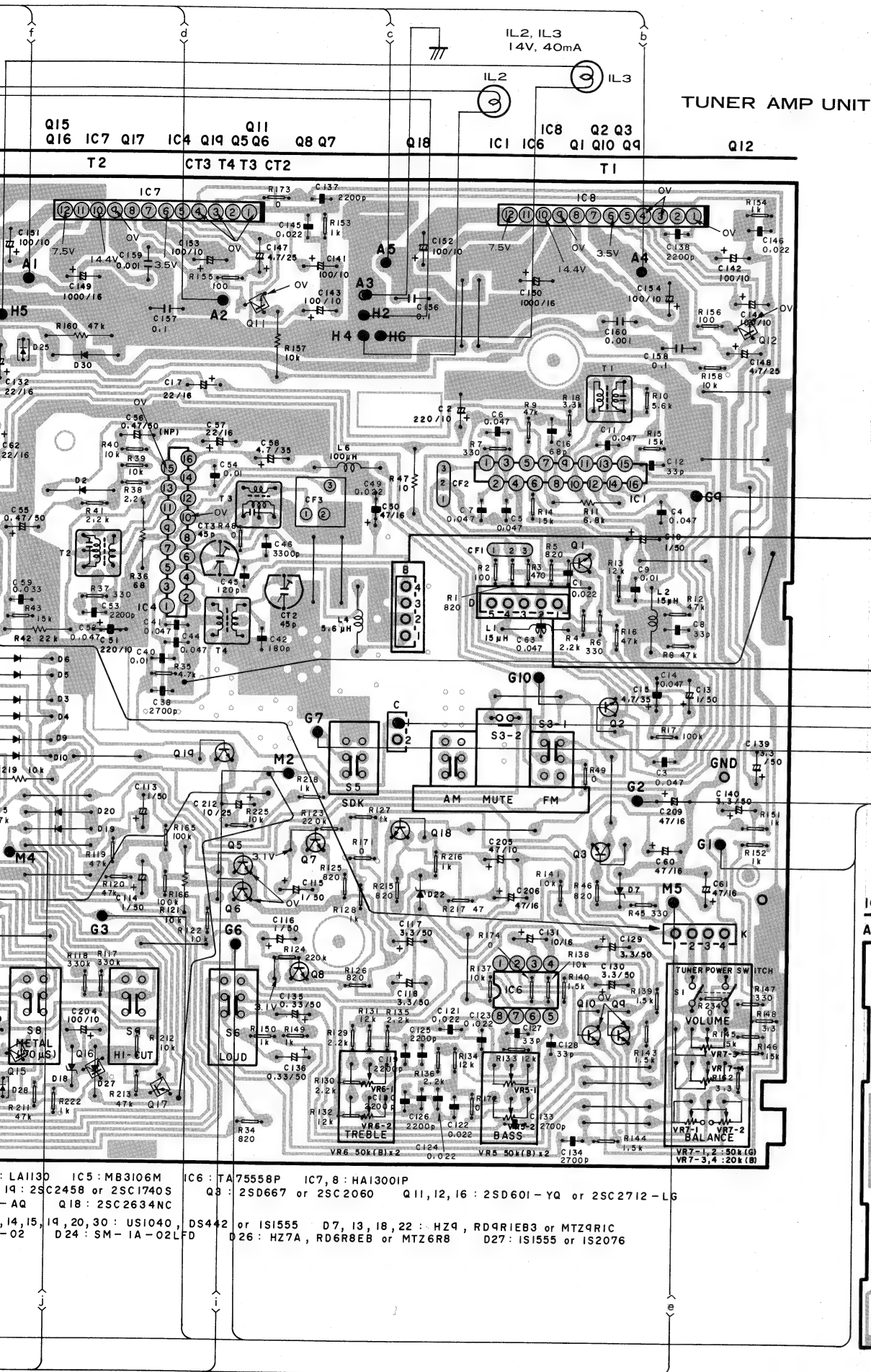


IC5	1	2	3	4	5	6	7	8
1	1.2V	0.7V	5.4V	9.2V	0V	5.4V	0.7V	1.2V

IC1	1	2	3	4	5	6	7	8
1	2.7V	2.7V	0V	2V	5V	5V	5V	0V
2	5V	0V	5V	8.4V	5V	4V	4V	4V



IC1: LA1140B IC2: LA2110 IC3: LA3376P IC4: LA113D IC5: MB3106M IC6: TA75558P
Q1: 2SC2786-L or 2SC1674-L Q2: 5~10, 14, 19: 2SC2458 or 2SC1740S Q3: 2SD667 or
Q13: 2SD1207 or 2SC2236 Q15, 17: 2SB709-AQ Q18: 2SC2634NC
D1, 11, 17, 21, 25, 28, 29: MA151K D2~6, 9, 10, 12, 14, 15, 19, 20, 30: US1040, DS442 or IS1555
D16: MA151WK D23: ISR-35-100A or ERA15-02 D24: SM-1A-02LFD D26: HZ7A,



IC6	
1	4.2V
2	4.2V
3	4.2V
4	0V
5	4.2V
6	4.2V
7	4.2V
8	8.4V

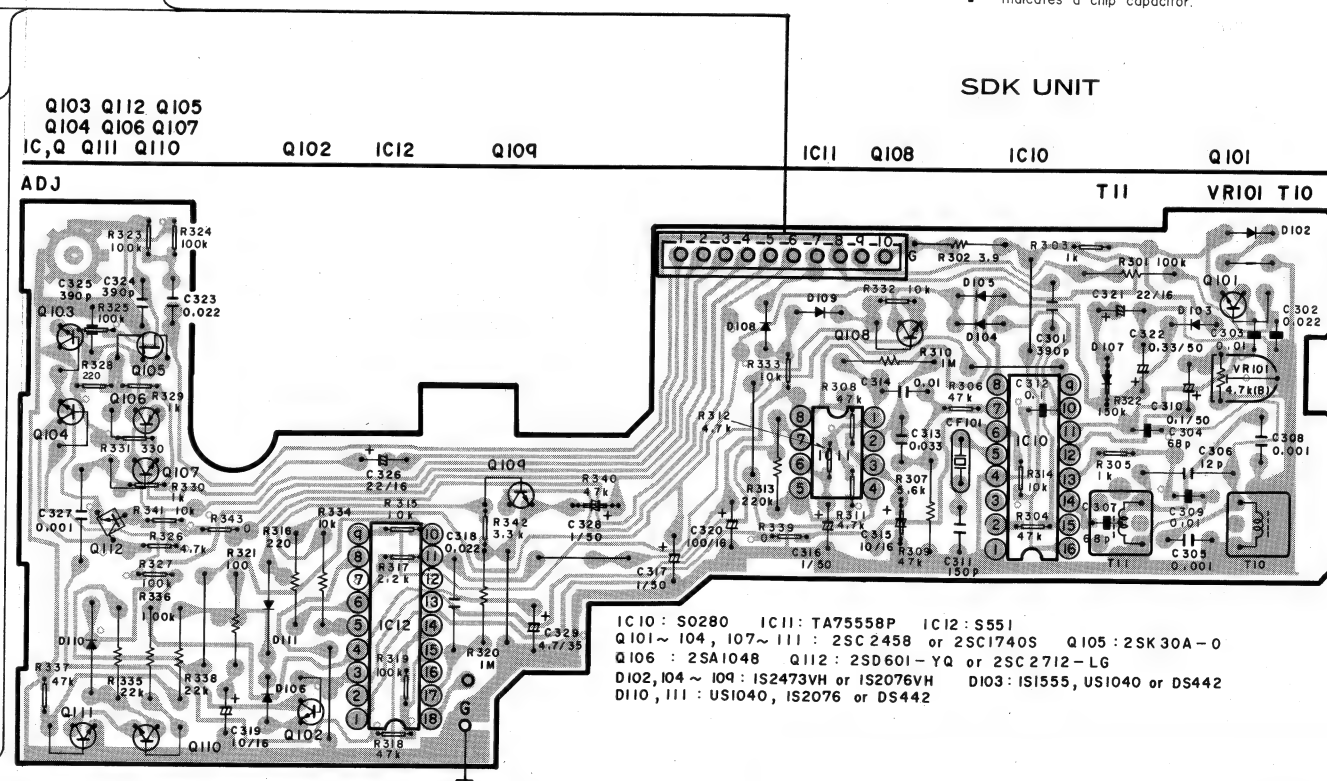
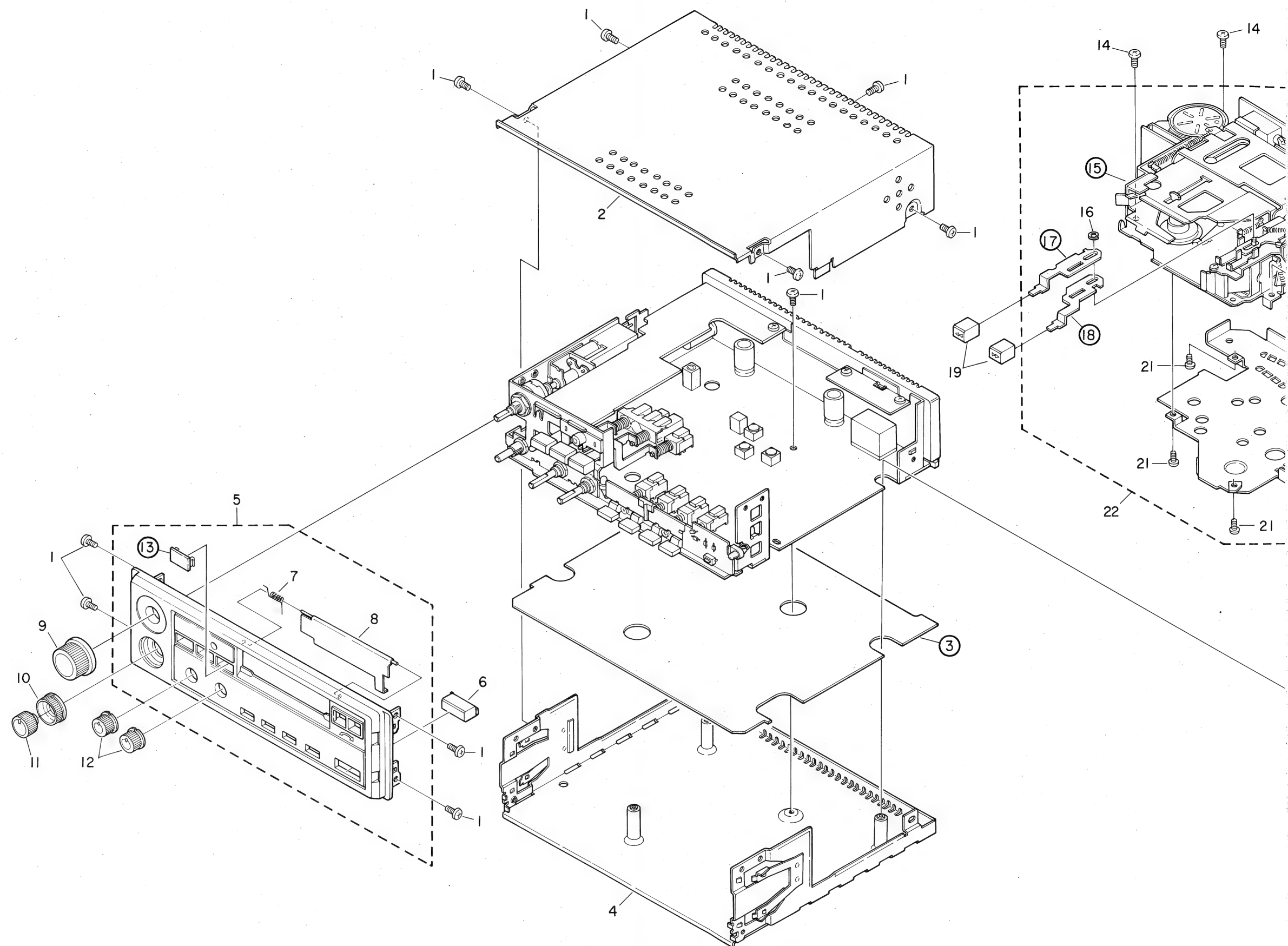
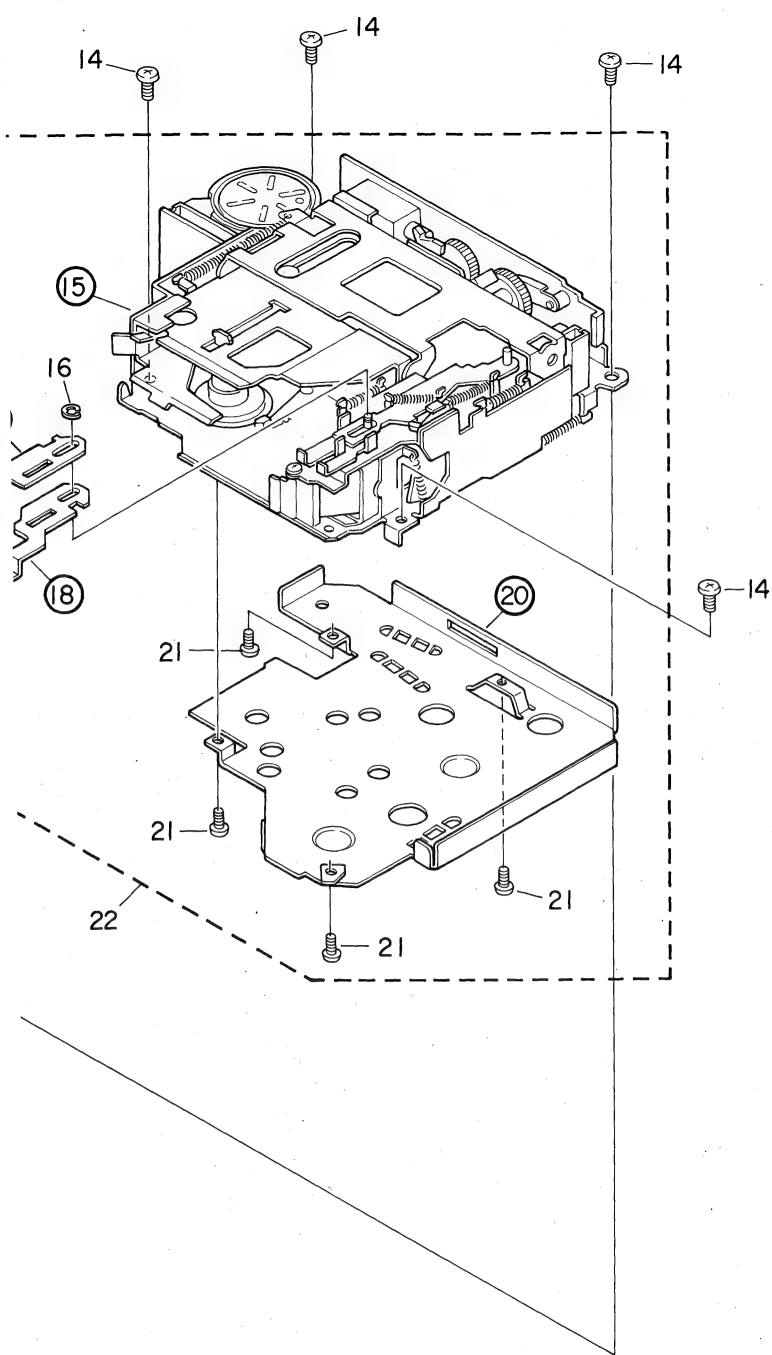


Fig. 37

14. CABINET EXPLODED VIEW

A
—
B
—
C
—
D





NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	BMZ30P050FMC	Screw		13.		Cap (KPH-4800/EW,ES)
	2.	CNB-860	Case		14.	BMZ26P050FMC	Screw
	3.		Insulator		15.		Cassette Mechanism Unit
	4.	CXD-348	Chassis Unit		16.	YE20FUC	Washer
	5.	CXD-484	Grille Assy (KPH-4800/WE,ES)		17.		Lever
		CXD-485	Grille Assy (KPH-4830/EW)		18.		Lever
		CXD-486	Grille Assy (KPH-4800SDK/WG)	★	19.	CAC-914	Button (FF, REW)
★	6.	CAC-907	Button (DIRECTION)		20.		Cover
	7.	CBH-875	Spring		21.	BMZ26P030FMC	Screw
	8.	CAT-211	Door		22.	CXK-700	Cassette Mechanism Assy (KPH-4800/EW, ES, KPH-4830/EW)
★	9.	CAA-573	Knob (TUNING)			CXK-800	Cassette Mechanism Assy (KPH-4800SDK/WG)
★	10.	CAA-575	Knob (BALANCE)				
★	11.	CAA-574	Knob (VOLUME/TUNER POWER SWITCH)				
★	12.	CAA-597	Knob (BASS, TREBLE)				

Fig. 38

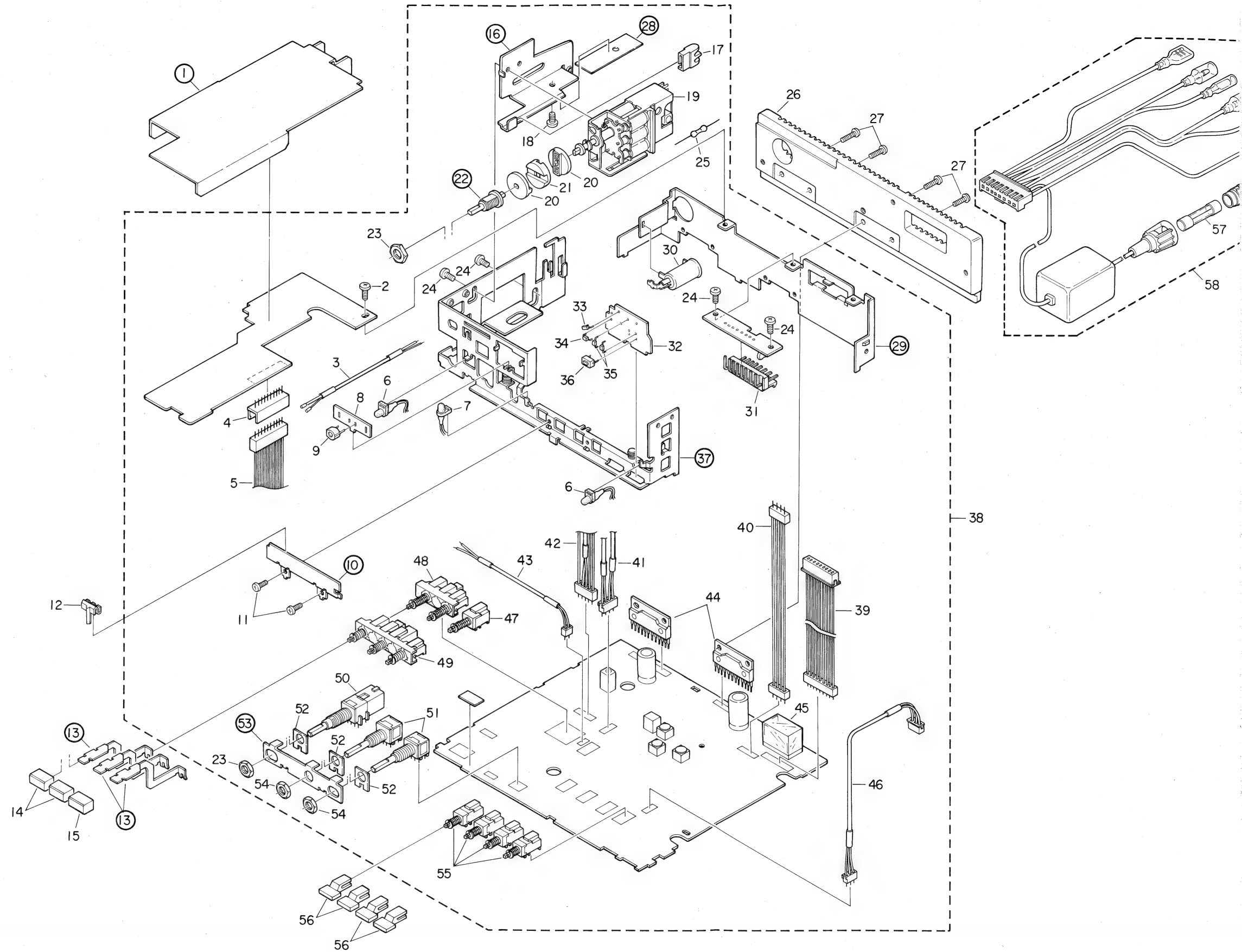
15. CHASSIS EXPLODED VIEW

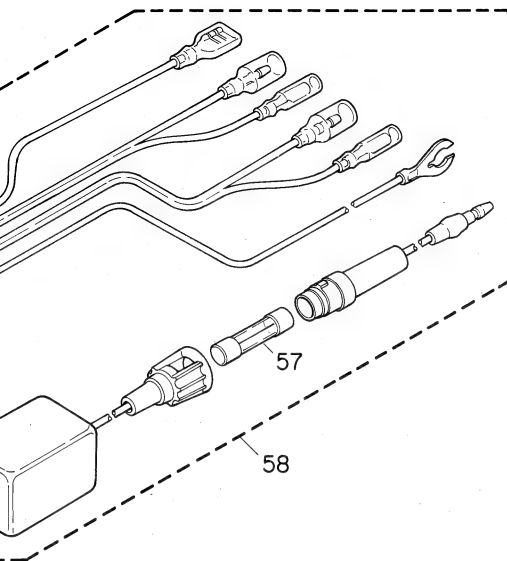
A

B

C

D





NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.		Insulator (KPH-4800SDK/WG)	★ ★	36.	CSG-212	Switch (DIRECTION)
	2.	BMZ30P050FMC	Screw (KPH-4800SDK/WG)		37.		Holder Unit
	3.	CDK-160	Connector (2P)		38.	CWM-273	Tuner/Amp Unit (KPH-4800/EW,ES)
	4.	CKS-275	Plug (10P) (KPH-4800SDK/WG)			CWM-274	Tuner/Amp Unit (KPH-4830/EW)
	5.	CDF-591	Connector (10p) (KPH-4800SDK/WG)				
★ ★	6.	CEL-146	Lamp,14V,40mA			CWM-275	Tuner/Amp Unit (KPH-4800SDK/WG)
★ ★	7.	CEL-160	Lamp, 14V, 40mA				
	8.	CNL-708	P. C. Board				
	9.	CCG-090	Antenna Trimmer, 90pF		39.	CDK-083	Connector (9P)
	10.		Holder		40.	CDF-976	Connector (3P)
					41.	CDK-084	Connector (4P)
	11.	BMZ26P050FMC	Screw		42.	CDF-631	Connector (5P)
	12.	CAF-071	Pointer		43.	CDK-085	Connector (2P)
	13.		Lever				
★	14.	CAC-908	Button (FM, MW)	★ ★	44.	HA13001P	IC
★	15.	CAC-908	Button (LW) (KPH-4830/EW)		45.	CSR-042	Relay
					46.	CDF-975	Connector (3P)
★		CAC-909	Button (SDK) (KPH-4800SDK/WG)	★ ★	47.	CSG-207	Switch (SDK) (KPH-4800SDK/WG)
	16.		Holder				
	17.	CNW-331	Guide	★ ★	48.	CSG-246	Switch (BAND SELECTOR) (KPH-4800/EW, KPH-4800SDK/WG)
	18.	BMZ30P030FMC	Screw				
	19.	CWB-153	Front End (KPH-4800/EW,ES, (KPH-4830/EW)	★ ★	49.	CSG-245	Switch (BAND SELECTOR) (KPH-4830/EW)
		CWB-175	Front End (KPH-4800SDK/WG)				
	20.	CNW-100	Coupler (A)	★ ★	50.	CCS-400	Volume/Switch (VOLUME, BALANCE, TUNER POWER)
	21.	CNW-101	Coupler (B)				
	22.		Shaft	★ ★	51.	CCS-401	Volume (BASS, TREBLE)
	23.	CBA-067	Nut				
	24.	BMZ30P050FMC	Screw		52.	CBE-116	Spacer
	25.	CTF-161	Ferri-Inductor, 4.7μH		53.		Holder
	26.	CNR-221	Heat Sint		54.	CBA-066	Nut
	27.	BMZ26P080FMC	Screw	★ ★	55.	CSG-207	Switch (LOUDNESS, MONO, METAL (70μs), HIGH CUT)
	28.		Insulator				
	29.		Holder				
	30.	CKX-006	Antenna Jack	★	56.	CAC-913	Button (LOUDNESS, MONO, METAL (70μs), HIGH CUT)
	31.	CKS-465	Plug (8P)		57.		Fuse, 4A
					58.	CDK-081	Cord Assy
	32.	CNL-732	P.C. Board				
★	33.	LN01201C	LED (STEREO)				
★	34.	LN01401C	LED (SDK) (KPH-4800SDK/WG)				
★	35.	LN01301C	LED (FWD, REV)				

Fig. 39

16. ELECTRICAL PARTS LIST

NOTE:
When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).
560Ω 56 × 10¹ 561 RD1/4PS 5 6 1 J
47kΩ 47 × 10³ 473 RD1/4PS 4 7 3 J
0.5Ω 0R5 RN2H 0 5 K
1Ω 010 RS1P 0 1 0 K
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ RN1/4SR 5 6 2 1 F
• For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
★★: GENERALLY MOVES FASTER THAN ★.
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
• Parts whose parts numbers are omitted are subject to being not supplied.

Tuner Amp Unit (CWM-273) (KPH-4800/EW,ES)

Caution:
The parts of the Tuner Amp Unit and P.C. Board are recorded together.

MISCELLANEOUS

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
★★	IC1	LA1140B	★★	Q18	2SC2634NC
★★	IC2	LA2110	★	D1,D11,D17,D21,D25,D28,D29	MA151K
★★	IC3	LA3376P		Chip diode	
★★	IC4	LA1130	★	D2-D6,D9,D10,D12,D14,D15, D19,D20,D30	US1040 or DS442 or
★★	IC5	MB3106M			
★★	IC6	TA75558P			1S1555
★★	IC7,IC8	HA13001P	★	D7,D13,D18,D22	HZ9 or RD9R1EB3 or MTZ9R1C
★★	Q1	2SC2786-L or 2SC1674-L		D8,D27	VACANT
★★	Q2,Q5-Q10,Q14	2SC2458 or			
		2SC1740S	★	D16	Chip Diode
★★	Q3	2SD667 or 2SC2060	★	D23	MA151WK
	Q4	VACANT	★	D24	1SR-35-100A or ERA15-02
★★	Q11,Q12,Q16	Chip Transistor	★	D26	SM-1A-02LFD
		2SD601-YQ or			HZ7A or
		2SD601-YR or 2SD601-YS or 2SC2712-LG or 2SC2712-LL or 2SC2712-LY		L1,L2	RD6R8EB or MTZ6R8
			L3,L5	Ferri-Inductor, 15μH	CTF-156
			L4	Ferri-Inductor, 5.6μH	VACANT
★★	Q13	2SD1207 or 2SC2236			CTF-213
★★	Q15,Q17	Chip Transistor	L6	Ferri-Inductor, 100μH	CTF-157
		2SB709-AQ or 2SB709-AR or 2SB709-AS	L7	Ferri-Inductor, 15μH	CTF-078
			T1	Coil	CTC-172
			T2	Coil	CTE-149
			T3	Coil	CTE-150

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	T4	Coil		C22	CQMA473J50L
	CF1,CF2	Ceramic Filter		C23	CEA470M16LS
				C24,C35,C36	Chip Capacitor
	CF3	Filter		C26,C55	CEAR47M50LS2
				C27,C29	CEA3R3M50LS
	CR1			C28	CSZA010M25
	CT2,CT3	Trimmer,		C30	CQSAH102J50
★★	VR1	Semi-fixed, 10kΩ(B)		C31,C33,C34	CQMA123J50L
★★	VR2	Semi-fixed, 150kΩ(B)		C38	Chip Capacitor
★★	VR3	Semi-fixed, 15kΩ(B)		C42	Chip Capacitor
★★	VR4	Semi-fixed, 10kΩ(B)		C45	Chip Capacitor
★★	VR5,VR6	Volume, 50kΩ(B)		C46	Chip Capacitor
		(BASS, TREBLE)		C53	Chip Capacitor
★★	VR7	Volume/Switch		C56	CKSYB222K50
		Volume, 20kΩ (B), 50kΩ (G)		C57	CCH-108
		(VOLUME, BALANCE, TUNER POWER)			CEA220M16LS
★★	S3	Switch (BAND SELECTOR)		C59	Chip Capacitor
				C101,C102	Chip Capacitor
★★	S6-S9	Switch (LOUDNESS, MONO, METAL (70μs), HIGH CUT)		C103,C104	CKSYF333Z50
				C105,C106,C209	CKSYB681K50
				C107,C108	CEANL4R7M25L
					CEA470M16LS
					CQMA103J50L
	RL1	Relay		C111,C112,C121-C124,C145, C146	CKSYB223K25
				C113-C116	Chip Capacitor
				C117,C118,C129,C130,C139, C140	CEA010M50LS2
					CEA3R3M50LS
RESISTORS					
Mark	Symbol & Description	Part No.			
	R1-R10,R12-R20,R22-R24, R26,R27,R29-R33,R35,R37-R41, R43,R45,R46,R48,R49,R101-R112, R115-R120,R122-R141,R143, R144,R148-R156,R158,R161,	RS1/8S□□□J		C119,C120,C125,C126,C137, C138	CKSYB222K50
				Chip Capacitor	
	R163-R166,R171-R174,R202-R204,R206-R213,R215-R218, R222,R231-R234	Chip Resistor		C127,C128	Chip Capacitor
	R11,R21,R25,R28,R36,R42, R47, R121,R157,R160,R205	RD1/4PM□□□J		C131	CCSSL330J50
				C132	CEA100M16L2
					CEA220M16LS
	R201	RD1/2PS□□□JL		C133,C134	Chip Capacitor
				C135,C136	CKSYB272J50
				C141-C144,C151-C154	CEAR33M50L2
				C147,C148	CEA101M10L2
				C149,C150	CEA4R7M25L2
					CEA102M16L2
				C155-C158	CQMA104J50L
				C159,C160	CQMA102J50L
				C201	CEA4R7M35LS
				C202	CEA221M10L2
				C203	CEAR68M50LS2
CAPACITORS					
Mark	Symbol & Description	Part No.			
	C1,C25,C49	Chip Capacitor		C204	CEA101M10L2
	C2,C51	CKSYB223K25		C205,C206	CEA470M16L2
	C3-C7,C11,C14,C41,C44,C52, C63	Chip Capacitor		C207	CEA100M16L2
	C8,C12	Chip Capacitor		C208	CCG-081
	C9,C20,C40,C54	CKSYB103K50			
	Chip Capacitor				
	C10	CEA010M50L2			
	C13	CEA010M50LS2			
	C15,C58	CEA4R7M35LS			
	C16	Chip Capacitor			
	C17,C62	CCSCH680J50			
	C18	Chip Capacitor			
	C19	CKSYB182K50			
	C21,C50,C60,C61	CQMA103J50L			
		CEA470M16LS			

Tuner Amp Unit (CWM-274) (KPH-4830/EW)

Caution:

The parts of the Tuner Amp Unit and P.C. Board are recorded together.

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC1	LA1140B
★★	IC2	LA2110
★★	IC3	LA3376P
★★	IC4	LA1130
★★	IC5	MB3106M
★★	IC6	TA75558P
★★	IC7,IC8	HA13001P
★★	Q1	2SC2786-L or 2SC1674-L
★★	Q2,Q5-Q10,Q14	2SC2458 or 2SC1740S
★★	Q3	2SD667 or 2SC2060
	Q4	VACANT
★★	Q11,Q12,Q16, Chip Transistor	2SD601-YQ or 2SD601-YR or 2SD601-YS or 2SC2712-LG or 2SC2712-LL or 2SC2712-LY
★★	Q13	2SD1207 or 2SC2236
★★	Q15,Q17 Chip Transistor	2SB709-AQ or 2SB709-AR or 2SB709-AS
★★	Q18	2SC2634NC
★	D1,D11,D17,D21,D25,D28, D29 Chip Diode	MA151K
★	D2-D6,D9,D10,D12,D14,D15, D19,D20,D30	US1040 or DS442 or 1S1555
★	D7,D13,D18,D22	HZ9 or RD9R1EB3 or MTZ9R1C
	D8,D27	VACANT
★	D16 Chip Diode	MA151WK
★	D23	1SR-35-100A or ERA15-02
★	D24	SM-1A-02LFD
★	D26	HZ7A or RD6R8EB or MTZ6R8
L1,L2	Ferri-Inductor, 15 μ H	CTF-156
L3		VACANT
L4	Ferri-Inductor, 5.6 μ H	CTF-213
L5,L6	Ferri-Inductor, 100 μ H	CTF-157
L7	Ferri-Inductor, 15 μ H	CTF-078
T1	Coil	CTC-172
T2	Coil	CTE-149
T3	Coil	CTE-150

Mark	Symbol & Description	Part No.
	T4 Coil	CTB-146
	T5 Coil	CTB-145
	T6 Coil	CTB-148
	T7 Coil	CTB-147
	CF1,CF2 Ceramic Filter	CTF-152 or CTF-217
	CF3 Filter	CTF-240 or CTF-100
	CR1	CWW-107
	CT2,CT3 Trimmer, 45pF	CCG-087
★★	VR1 Semi-fixed, 10k Ω (B)	CCP-245
★★	VR2 Semi-fixed, 150k Ω (B)	CCP-252
★★	VR3 Semi-fixed, 15k Ω (B)	CCP-246
★★	VR4 Semi-fixed, 10k Ω (B)	CCP-349
★★	VR5,VR6 Volume, 50k Ω (B) (TREBLE, BASS)	CCS-401
★★	VR7 Volume/Switch Volume, 20k Ω (B), 50k Ω (G) (VOLUME, BALANCE, TUNER POWER)	CCS-400
★★	S3 Switch (BAND SELECTOR)	CSG-245
★★	S6-S9 Switch (LOUDNESS, MONO, METAL (70 μ S), HIGH CUT)	CSG-207
	RL1 Relay	CSR-042

RESISTORS

Mark	Symbol & Description	Part No.
	R1-R10,R12-R20,R22-R24, R26,R27,R29-R33,R35,R37- R46,R48,R49,R101-R112,R115- R120,R122-R141,R143,R144, R148-R156,R158,R161, R163-R166,R171-R174,R202- R204,R206-R213,R215-R218, R222,R231-R234 Chip Resistor	RS1/8S□□□J
	R11,R21,R25,R28,R36,R42,	RD1/4PM□□□J
	R47,R121,R157,R160,R205 R201	RD1/2PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C1,C25,C49 Chip Capacitor	CKSYB223K25
	C2,C51	CEA221M10L2
	C3-C7,C11,C14,C41,C44, C52,C63 Chip Capacitor	CKSYF473Z50
	C8,C12 Chip Capacitor	CCSSL330J50
	C9,C20,C40,C54 Chip Capacitor	CKSYB103K50
	C10	CEA010M50L2
	C13	CEA010M50LS2
	C15,C58	CEA4R7M35LS

			Tuner Amp Unit (CWM-275) (KPH-4800SDK/WG)	
Mark	Symbol & Description	Part No.		
C16	Chip Capacitor	CCSCH680J50	Caution: The parts of the Tuner Amp Unit, P.C. Board and SDK Unit are recorded together.	
C17,C62		CEA220M16LS		
C18	Chip Capacitor	CKSYB182K50		
C19		CQMA103J50L		
C21,C50,C60,C61		CEA470M16LS		
			MISCELLANEOUS	
Mark	Symbol & Description	Part No.		
C22		CAMA473J50L	★★ IC1	LA1140B
C23		CEA470M16LS	★★ IC2	LA2110
C24,C35,C36	Chip Capacitor	CKSYB332K50	★★ IC3	LA3376P
C26,C55		CEAR47M50LS2	★★ IC4	LA1130
C27,C29		CEA3R3M50LS	★★ IC5	MB3106M
C28		CSZA010M25		
C30		CQSAH102J50	★★ IC6,IC11	TA75558P
C31,C33,C34		CQMA123J50L	★★ IC7,IC8	HA13001P
C37,C46	Chip Capacitor	CCSSL222J50	★★ IC9	VACANT
C38	Chip Capacitor	CCSSL272J50	★★ IC10	S0280
			★★ IC12	S551
C39		CKSYB562J50		
C42	Chip Capacitor	CCSTH181J50	★★ Q1	2SC2786-L or 2SC1674-L
C43		CQSAH132J50		
C45	Chip Capacitor	CCSPH121J50	★★ Q2,Q5-Q10,Q14,Q19, Q101-Q104,Q107-Q111	2SC2458 or 2SC1740S
C47	Chip Capacitor	CKSYF333Z50	★★ Q3	2SD667 or
C53	Chip Capacitor	CKSYB222K50		
C56		CCH-108		2SC2060
C57		CEA220M16LS	Q4	VACANT
C59	Chip Capacitor	CKSYF333Z50	★★ Q11,Q12,Q16,Q112	2SD601-YQ or
C101,C102	Chip Capacitor	CKSYB681K50	Chip Transistor	2SD601-YR or 2SD601-YS or
C103,C104		CEANL4R7M25L		
C105,C106,C209		CEA470M16LS		2SC2712-LG or
C107,C108		CQMA103J50L		2SC2712-LL or
C111,C112,C121-C124,C145, C146	Chip Capacitor	CKSYB223K25	★★ Q13	2SC2712-LY 2SD1207 or 2SC2236
C113-C116		CEA010M50LS2		
C117,C118,C129,C130,C139, C140		CEA3R3M50LS	★★ Q15,Q17	Chip Transistor 2SB709-AQ or 2SB709-AR or 2SB709-AS
C119,C120,C125,C126,C137, C138	Chip Capacitor	CKSYB222K50	★★ Q18	2SC2634NC
			★★ Q20,Q106	2SA1048
C127,C128	Chip Capacitor	CCSSL330J50		
C131		CEA100M16L2	★★ Q105	2SK30A-O
C132		CEA220M16LS	★ D1,D11,D17,D21,D25,D28, D29	MA151K
C133,C134	Chip Capacitor	CKSYB272J50	Chip Diode	
C135,C136		CEAR33M50L2	★ D2-D6,D9,D10,D12,D14,D15, D19,D20,D30,D103	US1040 or DS442 or
C141-C144,C151-C154		CEA101M10L2		
C147,C148		CEA4R7M25L2	★ D7,D13,D18,D22	1S1555 HZ9 or RD9R1EB3 or MTZ9R1C
C149,C150		CEA102M16L2		VACANT
C155-C158		CQMA104J50L	D8	
C159,C160		CQMA102J50L		
C201		CEA4R7M35LS	★ D16	MA151WK
C202		CEA221M10L2	★ D23	1SR-35-100A or ERA15-02
C203		CEAR68M50LS2		SM-1A-02LFD
C204		CEA101M10L2	★ D24	HZ7A or
C205,C206		CEA470M16L2	★ D26	
C207		CEA100M16L2		
C208		CCG-081	★ D27	RD6R8EB or MTZ6R8
			★ D31,D33-D36	1S1555 or 1S2076 1S2473VH

Mark	Symbol & Description	Part No.
★	D32	MV-11
★	D102,D104-D109	1S2473VH or 1S2076VH
★	D110,D111	US1040 or 1S2076 or DS442
L1,L2	Ferri-Inductor, 15μH	CTF-156
L3,L5		VACANT
L4	Ferri-Inductor, 5.6μH	CTF-213
L6	Ferri-Inductor, 100μH	CTF-157
L7	Ferri-Inductor, 15μH	CTF-078
T1	Coil	CTC-172
T2	Coil	CTE-149
T3	Coil	CTE-150
T4	Coil	CTB-146
T10,T11	Coil	CTF-125
CF1,CF2	Ceramic Filter	CTF-152 or CTF-217
CF3	Filter	CTF-240 or CTF-100
CF101	Ceramic Resonator	CTF-109
CR1		CWW-107
CT2,CT3	Trimmer, 45pF	CCG-087
★★	VR1	Semi-fixed, 10kΩ(B)
★★	VR2	Semi-fixed, 150kΩ(B)
★★	VR3	Semi-fixed, 15kΩ(B)
★★	VR4	Semi-fixed, 10kΩ(B)
★★	VR5,VR6	Volume, 50kΩ(B) (BASS, TEBLE)
★★	VR7	Volume/Switch Volume, 20kΩ(B), 50kΩ(G)
★★	VR101	(VOLUME, BALANCE, TUNER POWER) Semi-fixed, 4.7kΩ(B)
★★	S3	Switch (BAND SELECTOR)
★★	S5-S9	Switch
RL1	Relay	(SDK,LOUDNESS, MONO, METAL(70μs), HIGH CUT) CSR-042

RESISTOR

Mark	Symbol & Description	Part No.
	R1-R10,R12-R20,R22-R24,R26, R27,R29-R41,R43,R45,R46,R48, R49,R101-R112,R115-R120, R122-R141,R143-R156,R158, R161-R166,R171-R174,	RS1/8S□□□J
	R202-R204,R206-R213,R215- R218,R222-R225,R232-R234,R303- R306,R308,R309,R311,R312,R314, R315,R317-R319,R322,R323-R333, R337,R339-R343 Chip Resistor	
	R11,R21,R25,R28,R42,R47,R121, R157,R160,R205,R219,R301, R302,R307,R310,R313,R316, R320,R321,R334-R336,R338 R201	RD1/4PM□□□M RD1/2PS□□□JL
	R226	RD1/6PS□□□J

CAPACITORS

Mark	Symbol & Description	Part No.
	C1,C25,C49 Chip Capacitor	CKSYB223K25
	C2,C51	CEA221M10L2
	C3-C7,C11,C14,C41,C44,C52, C63 Chip Capacitor	CKSYF473Z50
	C8,C12 Chip Capacitor	CCSSL330J50
	C9,C20,C40,C54 Chip Capacitor	CKSYB103K50
	C10,C13	CEA010M50LS2
	C15,C58	CEA4R7M35LS
	C16 Chip Capacitor	CCSCH680J50
	C17,C62	CEA220M16LS
	C18 Chip Capacitor	CKSYB182K50
	C19	CQMA103J50L
	C21,C50,C60,C61	CEA470M16LS
	C22	CQMA473J50L
	C23	CEA470M16LS
	C24,C35,C36 Chip Capacitor	CKSYB332K50
	C26,C55	CEAR47M50LS2
	C27,C29	CEA3R3M50LS
	C28	CSZA010M25
	C30	CQSAH102J50
	C31,C33,C34	CQMA123J50L
	C38 Chip Capacitor	CCSSL272J50
	C42 Chip Capacitor	CCSTH181J50
	C45 Chip Capacitor	CCSPH121J50
	C46 Chip Capacitor	CCSSL332J50
	C53 Chip Capacitor	CKSYB222K50
	C56	CCH-108
	C57	CEA220M16LS
	C59 Chip Capacitor	CKSYF33250

Mark	Symbol & Description	Part No.
C101,C102 C103,C104 C105,C106,C209 C107,C108 C111,C112,C121-C124,C145,	Chip Capacitor	CKSYB681K50 CEANL4R7M25L CEA470M16LS CQMA103J50L CKSYB223K25
C146 C113-C116 C117,C118,C129,C130,C139,C140 C119,C120,C125,C126,C137, C138	Chip Capacitor	CEA010M50LS2 CEA3R3M50LS CKSYB222K50
C127,C128 C131 C132 C133,C134 C135,C136	Chip Capacitor	CCSSL330J50 CEA100M16L2 CEA220M16LS CKSYB272J50 CEAR33M50L2
C141-C144,C151-C154 C147,C148 C149,C150 C155-C158 C159,C160		CEA101M10L2 CEA4R7M25L2 CEA102M16L2 CQMA104J50L CQMA102J50L
C201 C202 C203 C204 C205,C206		CEA4R7M35LS CEA221M10L2 CEAR68M50LS2 CEA101M10L2 CEA470M16L2
C207 C208 C210 C211 C212		CEA100M16L2 CCG-081 CEA101M16LL CEA010M50L2 CEA100M25LS
C301,C324,C325 C302 C303,C309 C304,C307 C305,C308	Chip Capacitor	CCDSL391J50L CKSYB223K25 CKSYB103K50 CCSCH680J50 CQSAH102J50
C306 C310 C311 C312 C313	Chip Capacitor	CCPCH120J50 CEA0R1M50LS2 CQSAH151J50 CKSYF104Z25 CQMA333J50L
C314 C315,C319 C316,C317,C328 C318 C320		CQMA103J50L CEA100M16L2 CEA010M50LS2 CKPYY223N16 CEA101M16LL
C321,C326 C322 C323 C327 C329		CEA220M16LS CEAR33M50LS2 CQMA223J50L CKPYB102K50 CEA4R7M35LS

Antenna P.C. Board

Mark	Symbol & Description	Part No.
CT1	Antenna Trimmer, 90pF	CCG-090

Head Unit

Mark	Symbol & Description	Part No.
HD	Rotary Magnetic Head	CXD-421

LED Unit

Mark	Symbol & Description	Part No.
★ D201,D202	LED (FWD, REW)	LN01301C
★ D203	LED (STEREO)	LN01201C
★ D204	LED (SDK) (KPH-4800SDK/WG)	LN01401C
★★ S2	Switch (DIRECTION)	CSG-212

Switch P.C. Board

Mark	Symbol & Description	Part No.
★★ S1	Switch (TAPE POWER)	CSN-094
★★ S2	Switch (TAPE/TUNER)	HSK-126

Diode Unit

Mark	Symbol & Description	Part No.
★ D1		1S1555 or 1S2473
★ D2		1SR-35-100A or DS135
★ D3		MTZ5R1B

Miscellaneous Parts List

Mark	Symbol & Description	Part No.
L3	Ferri-Inductor, 4.7μH	CTF-161
★★ IL1,IL3	Lamp, 14V, 40mA	CEL-146
★★ IL2	Lamp, 14V, 40mA	CEL-160
★★ M	Motor	CXM-113
★ SO1	Solenoid (KEY OFF)	CXP-043
★ SO2	Solenoid (DIRECTION)	CXP-044
★★ S1	Switch (FWD/REV)	CSN-094
★★ S2	Switch (MUTE)	CSN-084
★★ S3	Switch (KEY OFF)	CSN-090
	Front End (KPH-4830/EW, KPH-4800/EW,ES)	CWB-153
	Front End (KPH-4800SDK/WG)	CWB-175

17. PACKING METHOD

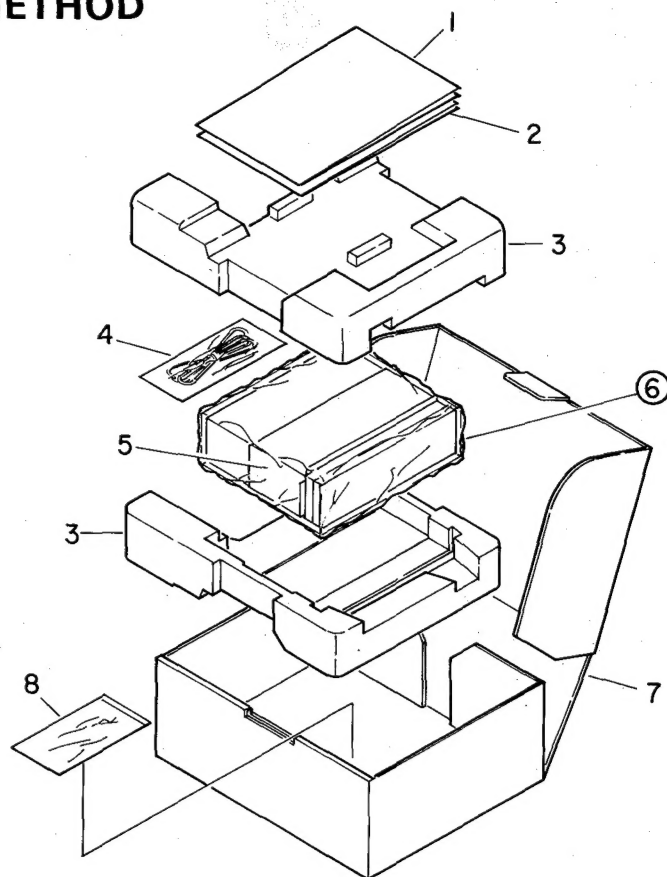


Fig. 40

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	CRB-504	Owner's Manual (KPH-4800/ES) (Arabic)			CHD-874	Carton (KPH-4830/EW)
		CRD-515	Owner's Manual (KPH-4800/EW, KPH-4830/EW) (Swedish, Norwegian, Dutch)			CHD-876	Carton (KPH-4800SDK/WG)
		CRD-516	Owner's Manual (KPH-4800SDK/WG) (German, French)		8.	CEA-885	Accessory Kit
	2.	CRD-514	Owner's Manual (KPH-4800/EW, KPH-4830/EW) (English, French, German, Spanish)		8-1.	CDE-437	Cord
					8-2.	CNF-111	Strap
	3.	CHD-870	Styro foam		8-3.	CNF-382	Lever
	4.	CDK-081	Cord Assy		8-4.	CNW-642	Holder
	5.	CNG-505	Holder		8-5.		Screw Kit
	6.		Cover		8-5-1.	CBA-028	Screw for Strap
	7.	CHD-872	Carton (KPH-4800/EW,ES)		8-5-2.	NF40FMC	Nut
					8-5-3.	NF50FMC	Nut
					8-5-4.	PMZ50Y160FMC	Screw
					8-5-5.	WS40FMC	Washer

QUESTIONNAIRE

MODEL _____

One Model per questionnaire

Dear Servicer,

Thank you for your cooperation in the post-sale service of Pioneer products.

This questionnaire is used as a tool to improve the serviceability of our products and service manuals. Please evaluate this model and service manual by answering the following questions. Your ideas may be realized in our future products. Your answers will be appreciated. Thank you.

PIONEER ELECTRONIC CORP.

T. Nakagawa, Manager, Service Section, International Division

1. SERVICING EVALUATION	Circle applicable number:	Good	Fair	Poor		
a. Disassembly/Re-assembly:		1	2	3	*4	*5
b. Circuit Checks:		1	2	3	*4	*5
c. Replacement of Parts:		1	2	3	*4	*5
d. Adjustment (s):		1	2	3	*4	*5

* If (4) or (5) was circled, please be specific.

e. Your advice, opinion or ideas related to servicing this product.

2. SERVICE MANUAL EVALUATION

a. Circuit & Mechanism Description

b. Circuit Diagram

3. OTHER

Please describe other areas of servicing which you may find difficult.

Completed by :

Date :

Company Name :

Address :

City/State/Zip :

Please send this form filled to the distributor in your country.